

ZEXEL - TEST VALUES

Injections pumps

<u>BOSCH No.</u>	:	9 400 610 125	1/4
<u>ZEXEL No.</u>	:	101322-0190	
<u>Date</u>	:	31.10.1990	[1]
<u>Company</u>	:	ISUZU	
<u>Engine</u>	:	3AD1 / 515600-6483	
<u>IP-Type number</u>	:	101032-9031 / PES4A	
<u>Governor type number</u>	:	105410-3220 / EP/RSV	

TEST PREREQUISITES

Test oil : ISO-4113
Test oil inlet temperature °C : 40.00...45.00
Inlet pressure bar : 1.6
Test nozzle holder combination : 1 688 901 013
Opening pressure bar : 175
Test pressure line
Inner x Outer Dia - Length mm : 2.00 x 6.00 x 600

PORT CLOSING

Prestroke mm : 1.75 ± 0.05
Rod position mm : -
Port closing mark Cyl. No. : -
Cam sequence : 1 - 3 - 4 - 2

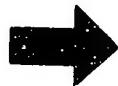
Port closing mark Cyl. No. : -
Port closing difference °NW : 0-90-180-270

Tolerance +- °C: 0.50 (0.75)

A1

ZEXEL - Test values

Injections pumps



Continued (Test values)

Injection Quantity :

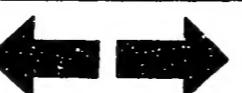
Adjusting Point	Rod Pos. (mm)	Speed (rpm)	Injection Q'ty (cc/1000 str.)	Difference (%)	Fixed	Remarks
A	11.5	1000	30.9 - 32.9	± 2.5	Lever	Basic
B	approx. 7.2	385	7.0 - 9.0	± 14	Rack	

Timing Advance Specification :

Speed (rpm)							
Advance Angle (deg)							

A2

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Injections pumps



A3

ZEXEL - Test values
Injections pumps



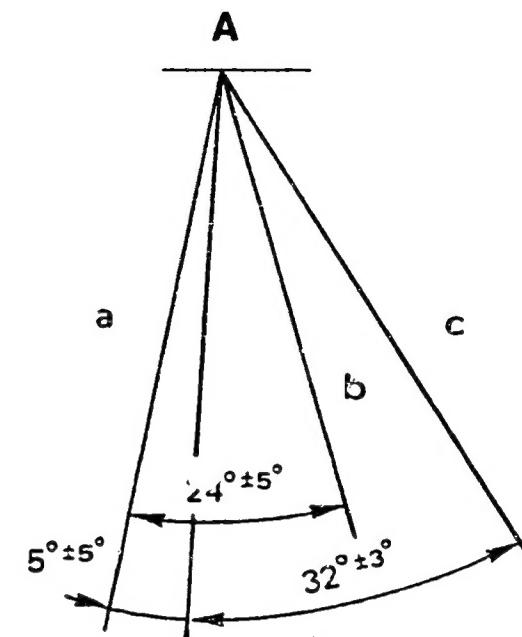
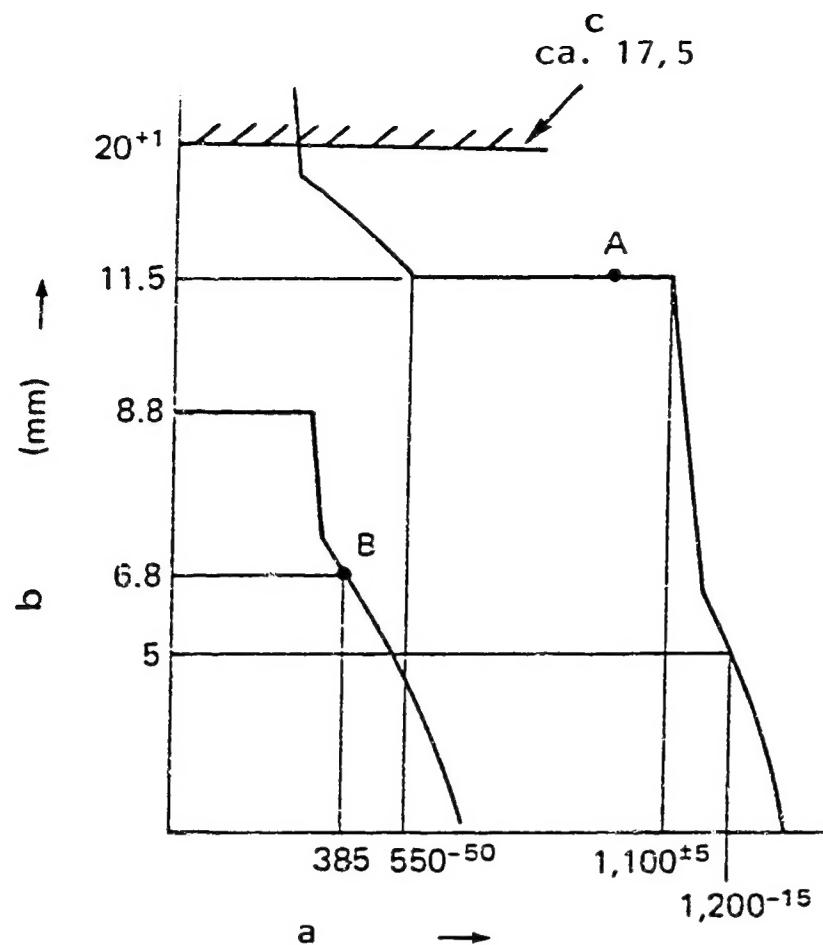


Fig. 1

GOVERNOR ADJUSTMENT

101322-0190 2/4

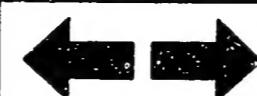
a = Pump speed (rpm)
 b = Control rack position
 c = Rack limit

■ Note

- Before adjustment, remove the idling sub spring and the torque control spring.
- Move the control lever fully in the stop direction, and set the minimum-speed stopper bolt so that the control rack position is 0.5 - 1.0 mm.

A = Speed control lever angle
 a = Full-speed
 b = Idling
 c = Stop

	Pump speed (rpm)	Rack position (mm)	Remarks
Full-load Adjustment (Temporary)	1095 - 1105	11.5	<ul style="list-style-type: none"> • Adjust using screw (1)
Torque Control spring Adjustment			<ul style="list-style-type: none"> • Adjust using spring capsule (4) • Confirm • Confirm • Confirm the torque control stroke is mm.
Idling Adjustment	0 385 -	8.8 6.8 -	<ul style="list-style-type: none"> • Fix the control lever • Adjust using spring capsule (5) • Confirm
Maximum-speed Adjustment	1095 - 1105 1185 - 1200	11.5 7.2	<ul style="list-style-type: none"> • Adjust using screw (1) • Confirm speed droop • Adjust using screw (3) • Confirm
Full-load Adjustment (Install the cover on governor cover)	1000	11.5	<ul style="list-style-type: none"> • Adjust using screw (2)
Control Lever Angle Measurement	<ul style="list-style-type: none"> • Measure the control lever angle at the "idling" and "full" positions. • When the control lever is depressed toward the "full" position, replace the shifter's shim with a thicker one. • When the control lever is depressed toward the "idling" position, replace the shifter's shim with a thinner one. 		
Rack Limiter Adjustment	0	17.5	<ul style="list-style-type: none"> • Adjust using screw



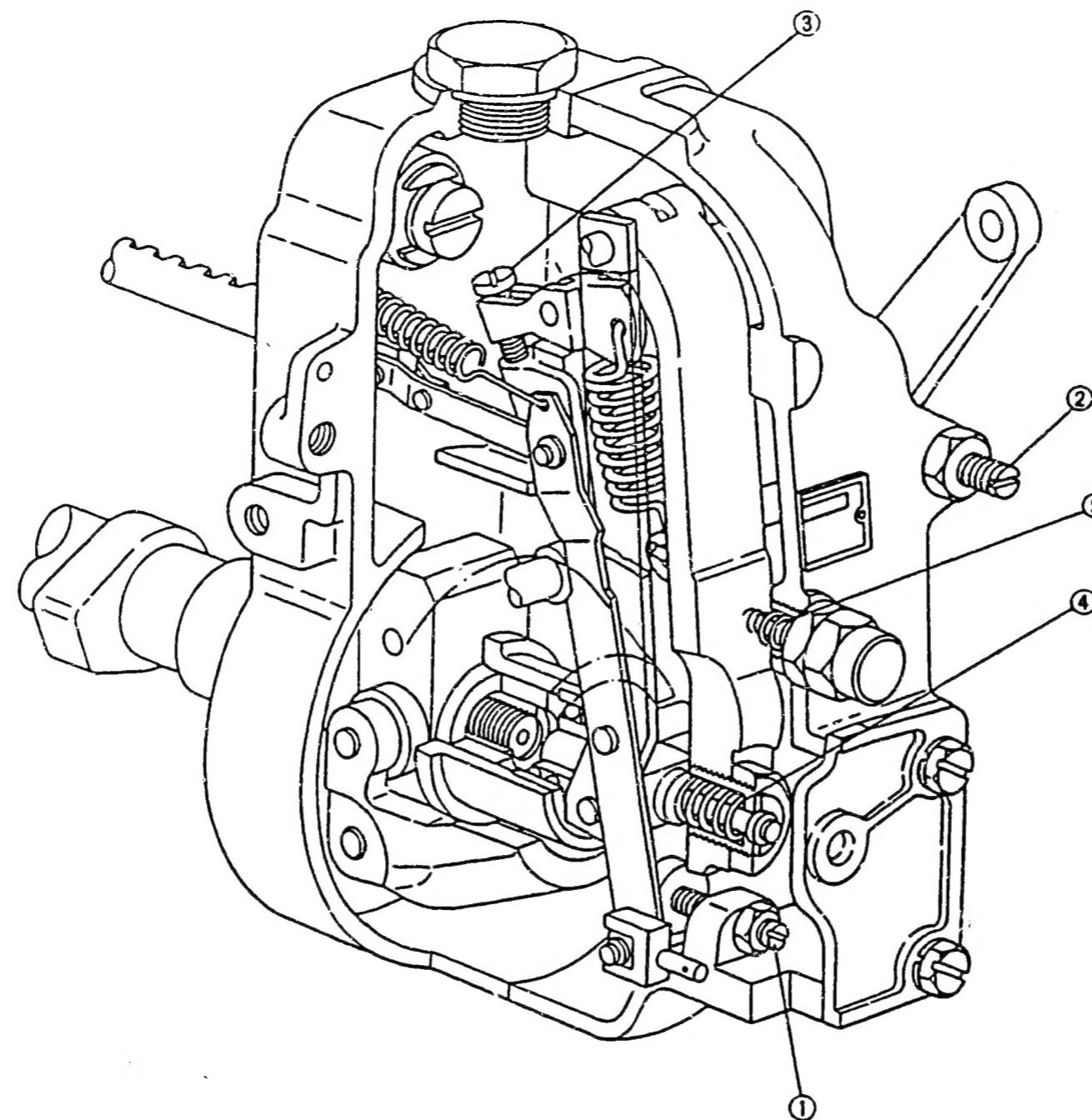


Fig. 2

- 1 = Screw
- 2 = Screw
- 3 = Screw
- 4 = Spring capsule
- 5 = Spring capsule

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ZEXEL - Test values
Injections pumps



A9

ZEXEL - Test values
Injections pumps



ZEXEL - TEST VALUES
Injections pumps

BOSCH No.	:	9 400 610 134	1/4
ZEXEL No.	:	101421-4980	
Date	:	31.10.1990	[01]
Company	:	ISUZU	
Engine	:	C190 / 515601-0621	
IP-Type number	:	101042-9760 / PES4A	
Governor type number	:	105542-3190 / EP/RBD	

TEST PREREQUISITES

Test oil : ISO-4113
Test oil inlet temperature °C : 40.00...45.00
Inlet pressure bar : 1.6
Test nozzle holder combination : 1 688 901 013
Opening pressure bar : 175
Test pressure line
Inner x Outer Dia - Length mm : 2.00 x 6.00 x 600

PORT CLOSING

Prestroke mm : 1.75 ± 0.05
Rod position mm : -
Port closing mark Cyl. No. : -
Cam sequence : 1 - 3 - 4 - 2

Port closing mark Cyl. No. : -
Port closing difference °NW : 0-90-180-270

Tolerance +- °C: 0.50 (0.75)



Continued (Test values)

Injection Quantity :

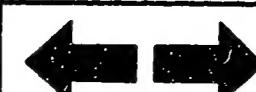
Adjusting Point	Rod Pos. (mm)	Speed (rpm)	Injection Q'ty (cc/1000 str.)	Difference (%)	Fixed	Remarks
	11.7	1800	36.1 - 37.9	± 2.5	Rack	Basic
	approx. 7.2	300	5.9 - 8.1	± 14	Rack	
	-	150	above 52	-	Rack	

Timing Advance Specification :

Speed (rpm)							
Advance Angle (deg)							

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ZEXEL - Test values
Injections pumps



A12

ZEXEL - Test values
Injections pumps



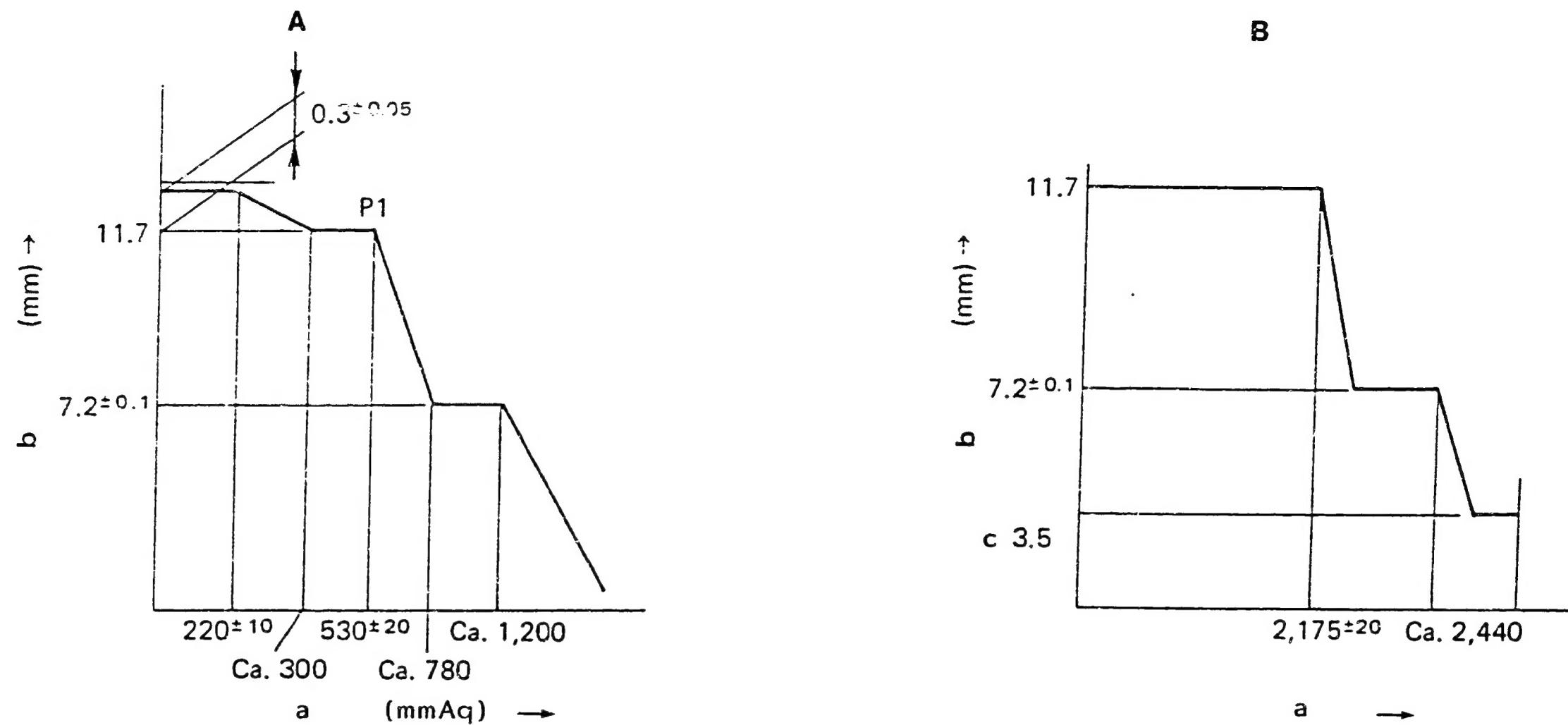


Fig. 3

GOVERNOR ADJUSTMENT

101421-4980 2/4

A = Pneumatic Governor

a = Negative pressure

b = Control rack position

B = Mechanical Governor

a = Pump speed (rpm)

b = Control rack position

c = Below

■ AIR TIGHTNESS TEST

1. Increase the pressure of the pneumatic governor's negative pressure chamber to 500 mmAq at a pump speed of 500 rpm and a control rack position of approx. 12.0 mm.
2. Then, confirm that it takes 10 seconds or more for the negative pressure to fall from 500 mmAq to 480 mmAq.

A13

ZEXEL - Test values

Injections pumps



A14

ZEXEL - Test values

Injections pumps



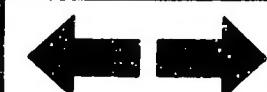
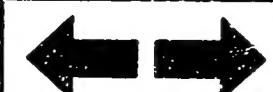
■ ADJUSTMENT

A) Pneumatic Governor (Pump Speed: 500 rpm)

	Negative Pressure (mmAq)	Rack Position (mm)	Remarks
Smoke Set Screw Adjustment	0	12.0	<ul style="list-style-type: none"> • Adjust using spring caps. (6)
Torque Control Adjustment 1) Start of torque control spring movement 2) End of torque control spring movement 3) Confirm torque control stroke	210 - 230 approx. 300 -	12.0 11.7 -	<ul style="list-style-type: none"> • Adjust thickness of shim (1) • Adjust thickness of shim (2) • Inspection: 0.2 - 0.4 mm
High-speed Control Adjustment	510 - 550	11.7	<ul style="list-style-type: none"> • Adjust thickness of shim (3)
Idling Adjustment	approx. 780 approx. 1200	7.1 - 7.3 7.1 - 7.3	<ul style="list-style-type: none"> • Adjust using spring capsule (4) • Confirm

B) Mechanical Governor (Negative pressure: 510 - 550 mmAq)

	Pump speed (rpm)	Rack Position (mm)	Remarks
Maximum Speed Control Adjustment	2155 - 2195 approx. 2440 approx. 2800	11.7 7.1 - 7.3 below 3.5	<ul style="list-style-type: none"> • Adjust using screw (5) • Confirm • Confirm (Check the fuel injection quantity: below 3 cc/1000st)



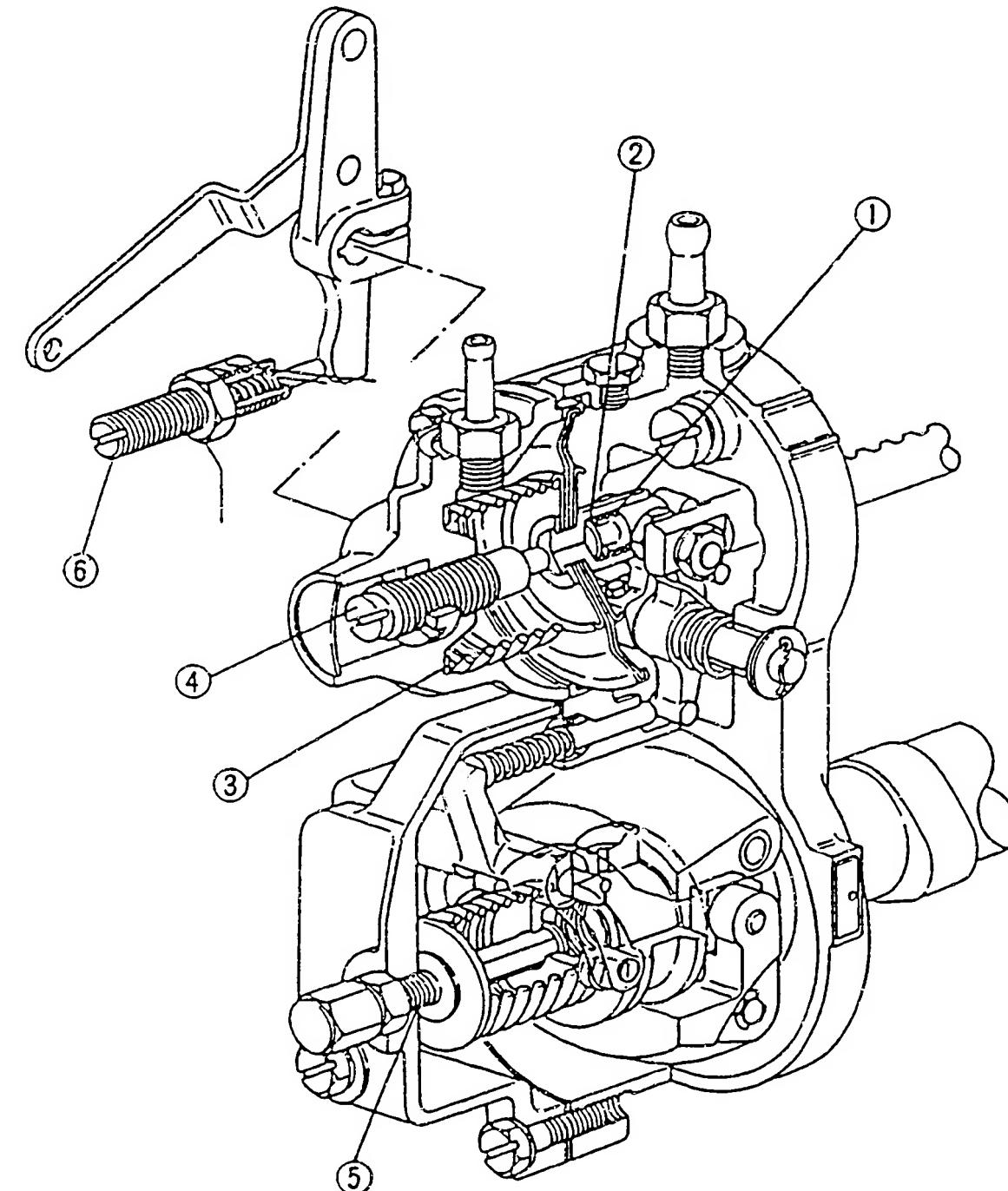


Fig. 4

- 1 = Shim
- 2 = Shim
- 3 = Shim
- 4 = Spring capsule
- 5 = Screw
- 6 = Spring capsule

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ZEXEL - Test values
Injections pumps



A18

ZEXEL - Test values
Injections pumps



Smoke Setting			Fuel Injection Quantity Adjustment		
Pump Speed (rpm)	Negative Pressure (mmAq)	Injection Q'ty (cc/1000st)	Pump Speed (rpm)	Negative Pressure (mmAq)	Injection Q'ty (cc/1000st)
1800	11.7	36.1 - 37.9			

■ TIMING SETTING

At No. 4 plunger's beginning of injection position.

B.T.D.C.: 18°

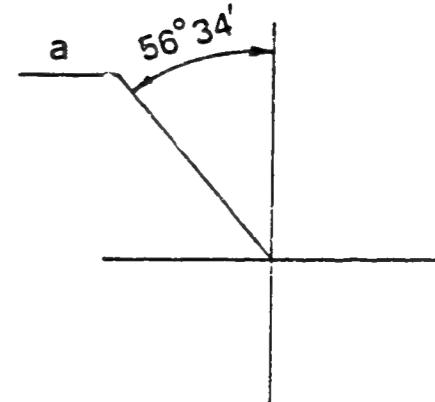
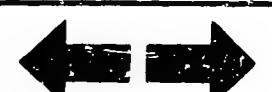


Fig. 5

Pump center line

a = Mark "Z"



ZEXEL - T E S T V A L U E S

Injections pumps

<u>BOSCH No.</u>	:	9 400 610 126	1/4
<u>ZEXEL No.</u>	:	101432-0240	
<u>Date</u>	:	31.10.1990	[0]
<u>Company</u>	:	ISUZU	
<u>Engine</u>	:	C240 / 515601-1682	
<u>IP-Type number</u>	:	101043-9160 / PES4A	
<u>Governor type number</u>	:	105542-3430 / EP/RBD	

T E S T P R E R E Q U I S I T E S

Test oil : ISO-4113
Test oil inlet temperature °C : 40.00...45.00
Inlet pressure bar : 1.6
Test nozzle holder combination : 1 688 901 013
Opening pressure bar : 175
Test pressure line
Inner x Outer Dia - Length mm : 2.00 x 6.00 x 600

P O R T C L O S I N G

Prestroke mm : 2.25 ± 0.05
Rod position mm : -
Port closing mark Cyl. No. : -
Cam sequence : 1 - 3 - 4 - 2

Port closing mark Cyl. No. : -
Port closing difference °NW : 0-90-180-270

Tolerance +- °C: 0.50 (0.75)

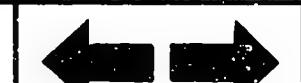


Injection Quantity :

Adjusting Point	Rod Pos. (mm)	Speed (rpm)	Injection Q'ty (cc/1000 str.)	Difference (%)	Fixe	Remarks
	12.1	750	33.2 - 36.4	± 4	Rack	
	11.5	1100	32.5 - 34.5	± 2.5	Rack	Basic
	approx. 7.9	350	6.1 - 8.3	± 14	Rack	

Timing Advance Specification :

Speed (rpm)							
Advance Angle (deg)							



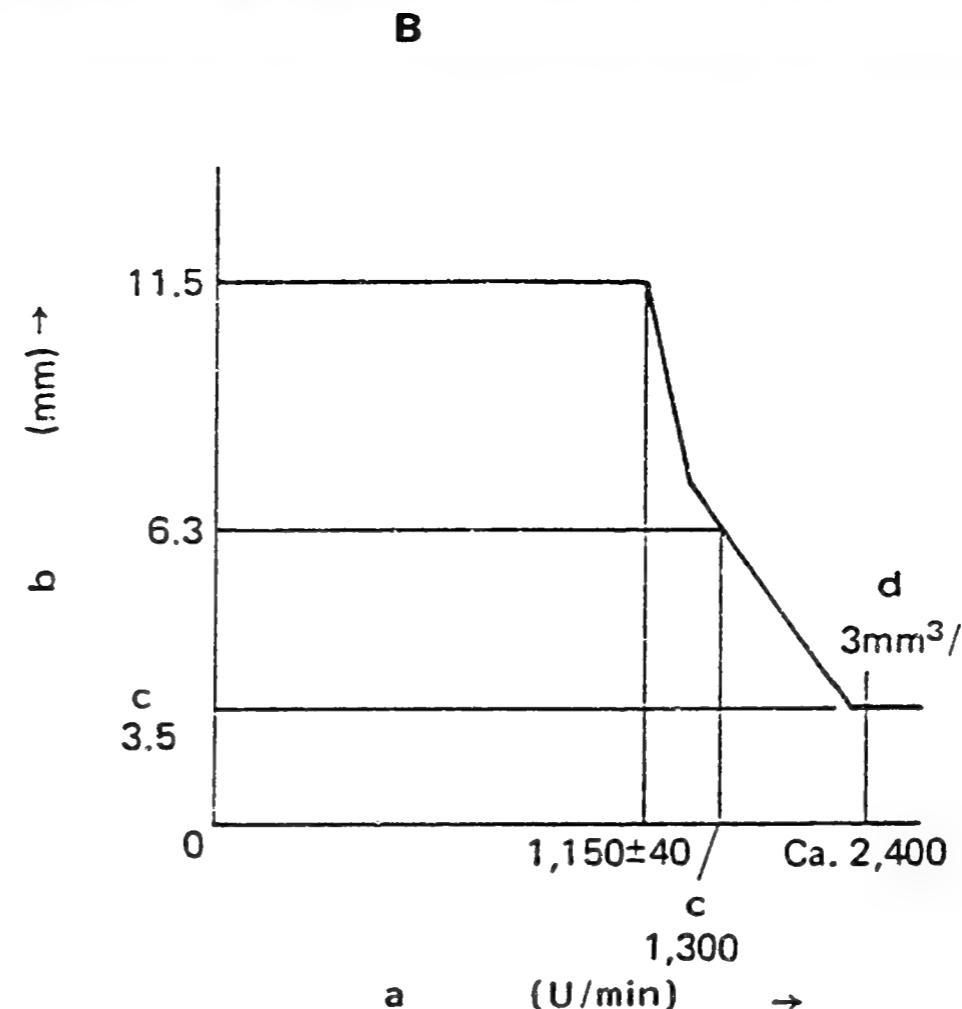
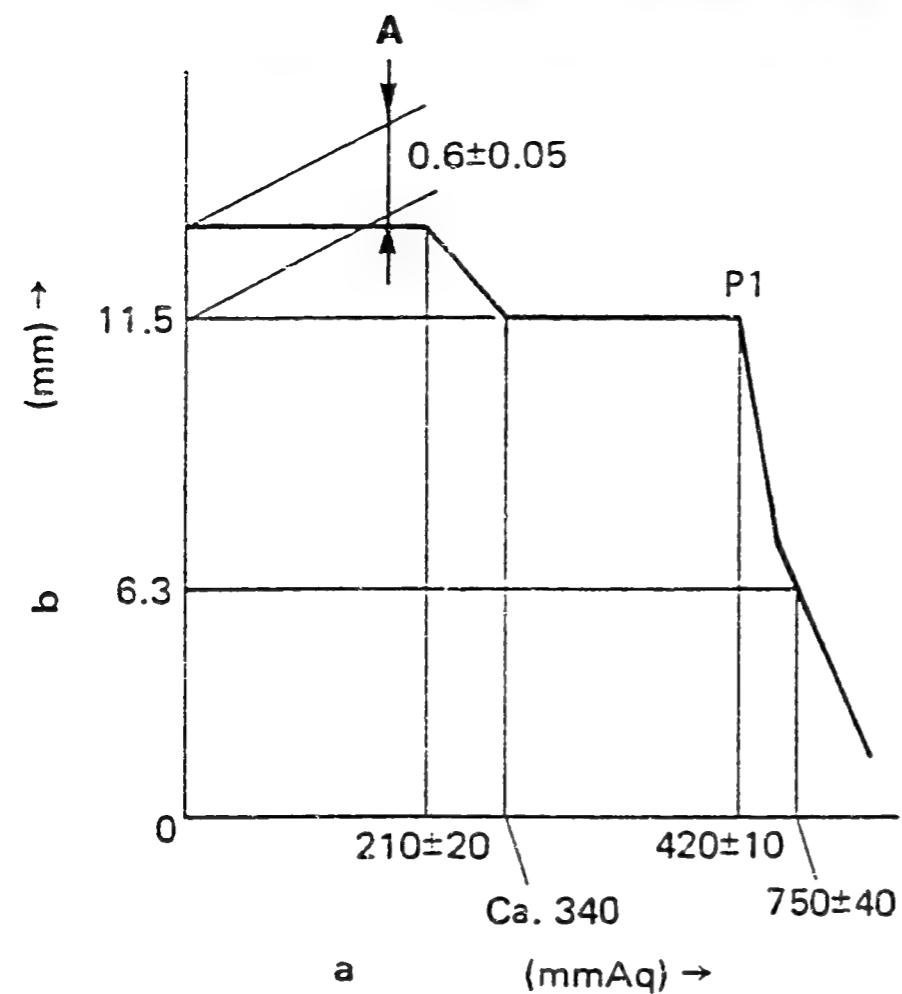


Fig. 6

GOVERNOR ADJUSTMENT

101432-0240 2/4

A = Pneumatic Governor

a = Negative pressure

b = Control rack position

■ AIR TIGHTNESS TEST

1. Increase the pressure of the pneumatic governor's negative pressure chamber to 500 mmAq at a pump speed of 500 rpm and a control rack position of approx. 12.1 mm.
2. Then, confirm that it takes 10 seconds or more for the negative pressure to fall from 500 mmAq to 480 mmAq.

B4

ZEXEL - Test values

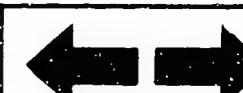
Injections pumps



B5

ZEXEL - Test values

Injections pumps



■ ADJUSTMENT

A) Pneumatic Governor (Pump Speed: 500 rpm)

	Negative Pressure (mmAq)	Rack Position (mm)	Remarks
Smoke Set Screw Adjustment	0	12.1	<ul style="list-style-type: none"> • Adjust using spring capsule (6)
Torque Control Adjustment 1) Start of torque control spring movement 2) End of torque control spring movement 3) Confirm 4) Confirm torque control stroke	190 - 230 approx. 340 - -	12.1 11.5 - -	<ul style="list-style-type: none"> • Adjust thickness of shim (1) • Adjust thickness of shim (2) • Inspection: 0.55 - 0.65 mm
High-speed Control Adjustment	410 - 430	11.5	<ul style="list-style-type: none"> • Adjust thickness of shim (3)
Idling Adjustment	710 - 790	6.3	<ul style="list-style-type: none"> • Adjust using spring capsule (4) • Confirm

B) Mechanical Governor (Negative pressure: 410 - 430 mmAq)

	Pump speed (rpm)	Rack Position (mm)	Remarks
Maximum Speed Control Adjustment	1110 - 1190 below 1300 approx. 2400	11.5 6.3 below 3	<ul style="list-style-type: none"> • Adjust using screw (5) • Confirm • Confirm (Check the fuel injection quantity: below 3 cc/1000st)



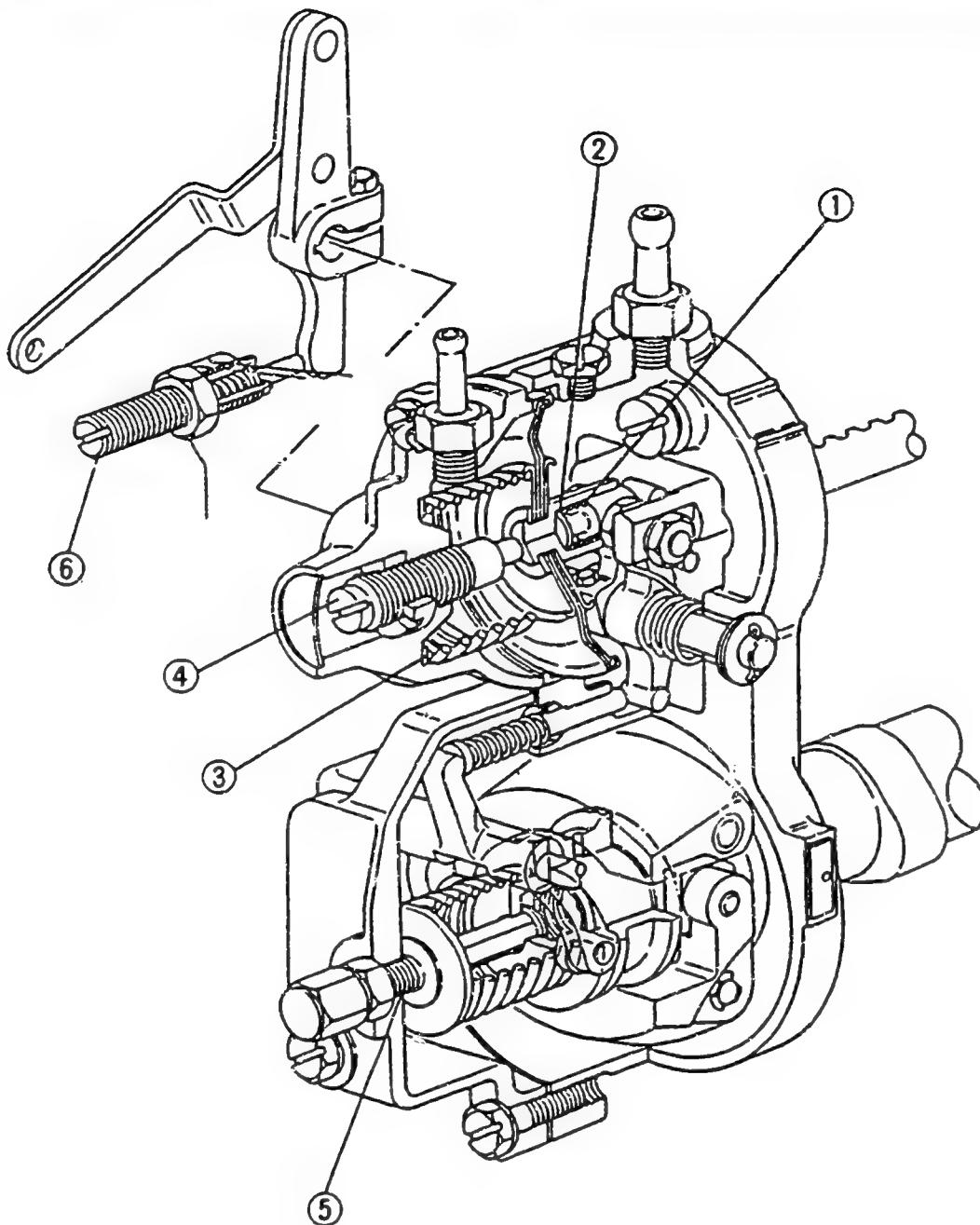


Fig. 7

- 1 = Shim
- 2 = Shim
- 3 = Shim
- 4 = Spring capsule
- 5 = Screw
- 6 = Spring capsule

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■ FINAL ADJUSTMENT

Smoke Setting			Fuel Injection Quantity Adjustment		
Pump Speed (rpm)	Negative Pressure (mmAq)	Injection Q'ty (cc/1000st)	Pump Speed (rpm)	Negative Pressure (mmAq)	Injection Q'ty (cc/1000st)
1100	11.5	32.5 - 34.5			

■ TIMING SETTING

At No. 1 plunger's beginning of injection position.

B.T.D.C.: 18°

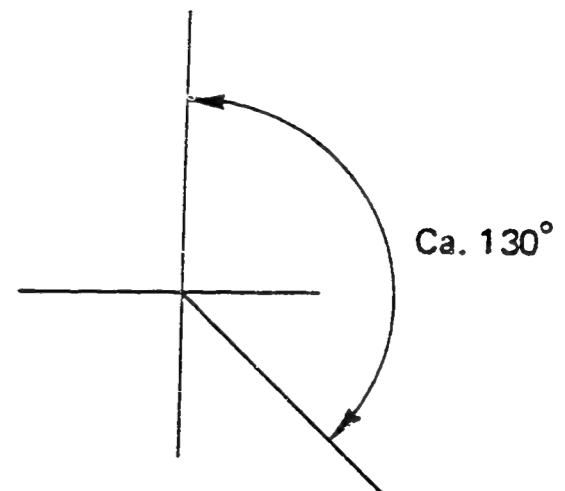


Fig. 8

Pump center line

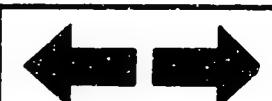
B10

ZEXEL - Test values
Injections pumps



B11

ZEXEL - Test values
Injections pumps



ZEXEL - TEST VALUES

Injections pumps

<u>BOSCH No.</u>	:	9 400 610 100	1/4
<u>ZEXEL No.</u>	:	101432-0310	
<u>Date</u>	:	31.10.1990	[1]
<u>Company</u>	:	ISUZU	
<u>Engine</u>	:	C240 / 894139-9530	
<u>IP-Type number</u>	:	101043-9160 / PES4A	
<u>Governor type number</u>	:	105542-4030 / EP/RBD	

TEST PREREQUISITES

Test oil : ISO-4113
Test oil inlet temperature °C : 40.00...45.00
Inlet pressure bar : 1.6
Test nozzle holder combination : 1 688 901 013
Opening pressure bar : 175
Test pressure line
Inner x Outer Dia - Length mm : 2.00 x 6.00 x 600

PORT CLOSING

Prestroke mm : 2.25 ± 0.05
Rod position mm : -
Port closing mark Cyl. No. : -
Cam sequence : 1 - 3 - 4 - 2

Port closing mark Cyl. No. : -
Port closing difference °NW : 0-90-180-270

Tolerance +- °C: 0.50 (0.75)



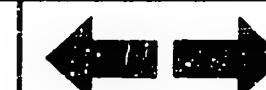
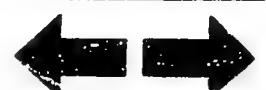
Continued (Test values)

Injection Quantity :

Adjusting Point	Rod Pos. (mm)	Speed (rpm)	Injection Q'ty (cc/1000 str.)	Difference (%)	Fixed	Remarks
	10.3	1000	28.8 - 30.8	± 2.5	Rack	
	(7.3)	300	6.9 - 9.1	± 14	Rack	

Timing Advance Specification :

Speed (rpm)							
Advance Angle (deg)							



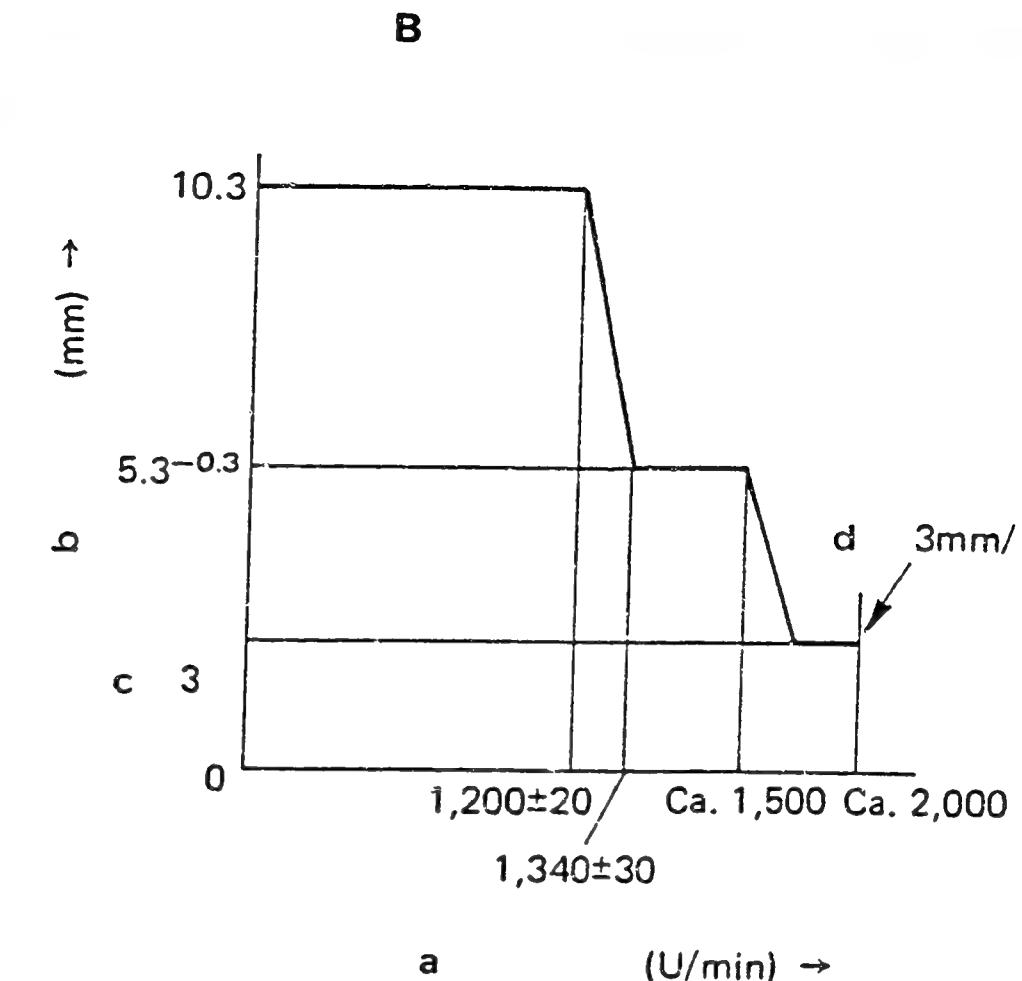
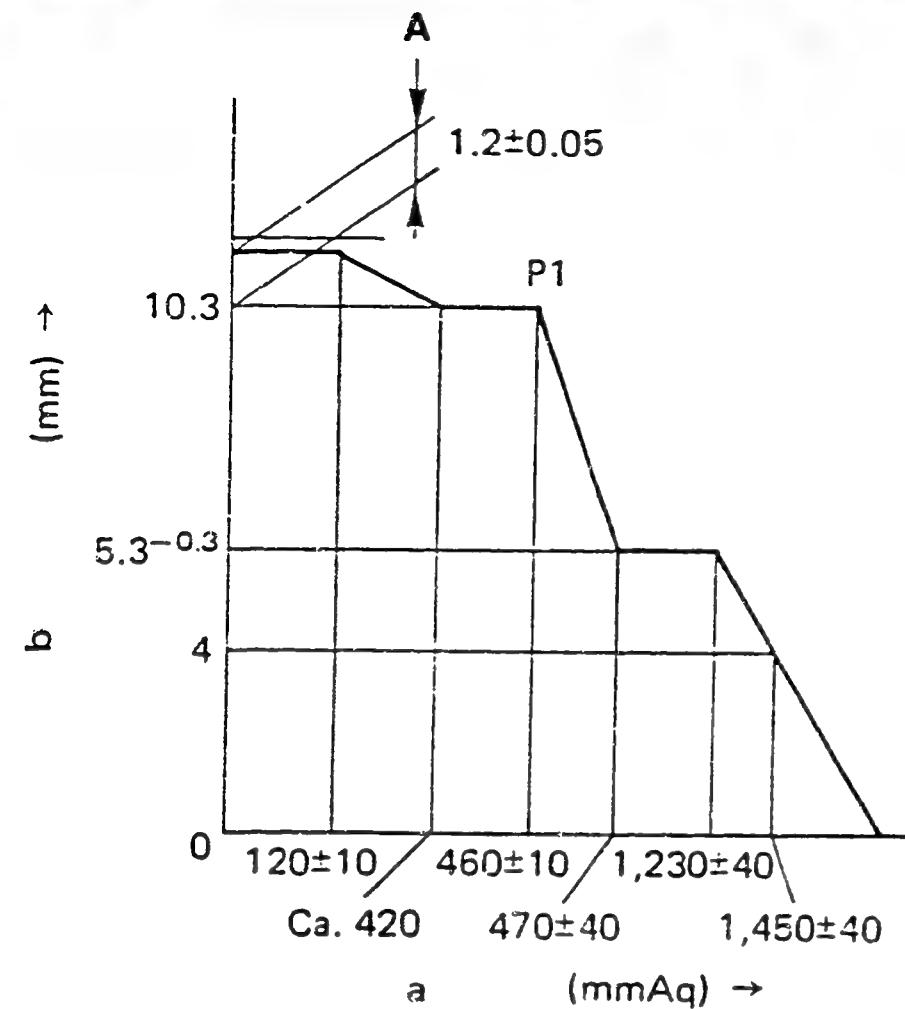


Fig. 9

GOVERNOR ADJUSTMENT

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A = Pneumatic Governor

a = Negative pressure

b = Control rack position

■ AIR TIGHTNESS TEST

1. Increase the pressure of the pneumatic governor's negative pressure chamber to 500 mmAq at a pump speed of 500 rpm and a control rack position of approx. 11.5 mm.
2. Then, confirm that it takes 10 seconds or more for the negative pressure to fall from 500 mmAq to 480 mmAq.

B = Mechanical Governor

a = Pump speed (rpm)

b = Control rack position

c = Below

d = Below /st

a = Stop

b = Normal

■ ADJUSTMENT

A) Pneumatic Governor (Pump Speed: 500 rpm)

	Negative Pressure (mmAq)	Rack Position (mm)	Remarks
Smoke Set Screw Adjustment	0	11.5	<ul style="list-style-type: none"> • Adjust using spring capsule (6)
Torque Control Adjustment 1) Start of torque control spring movement 2) End of torque control spring movement 3) Confirm 4) Confirm torque control stroke	110 - 130 approx. 420 - -	11.5 10.3 - -	<ul style="list-style-type: none"> • Adjust thickness of shim (1) • Adjust thickness of shim (2) • Inspection: 1.15 - 1.25 mm
High-speed Control Adjustment	450 - 470	10.3	<ul style="list-style-type: none"> • Adjust thickness of shim (3)
Idling Adjustment	approx. 720 approx. 1320	5.0 - 5.3 5.0 - 5.3	<ul style="list-style-type: none"> • Adjust using spring capsule (4) • Confirm

B) Mechanical Governor (Negative pressure: 450 - 470 mmAq)

	Pump speed (rpm)	Rack Position (mm)	Remarks
Maximum Speed Control Adjustment	1180 - 1220 approx. 1500 approx. 2000	10.3 5.0 - 5.3 below 3.5	<ul style="list-style-type: none"> • Adjust using screw (5) • Confirm • Confirm (Check the fuel injection quantity: below 3 cc/1000st)



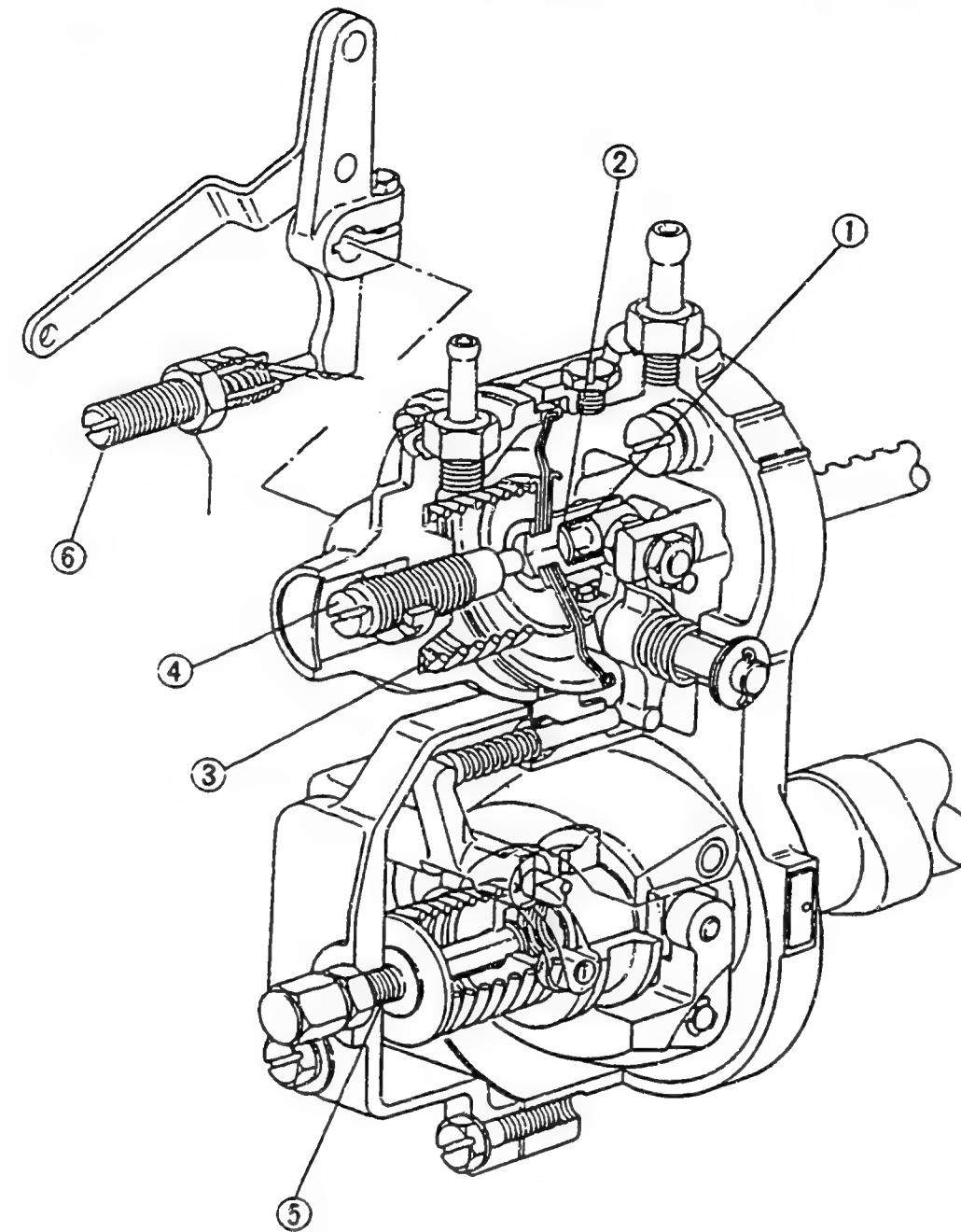


Fig. 10

- 1 = Shim
- 2 = Shim
- 3 = Shim
- 4 = Spring capsule
- 5 = Screw
- 6 = Spring capsule

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B19

ZEXEL - Test values
Injections pumps



B20

ZEXEL - Test values
Injections pumps



■ FINAL ADJUSTMENT

Smoke Setting			Fuel Injection Quantity Adjustment		
Pump Speed (rpm)	Negative Pressure (mmAq)	Injection Q'ty (cc/1000st)	Pump Speed (rpm)	Negative Pressure (mmAq)	Injection Q'ty (cc/1000st)
1000	10.3	28.8 - 30.8			

■ TIMING SETTING

At No. 4 plunger's beginning of injection position.

B.T.D.C.: 18°

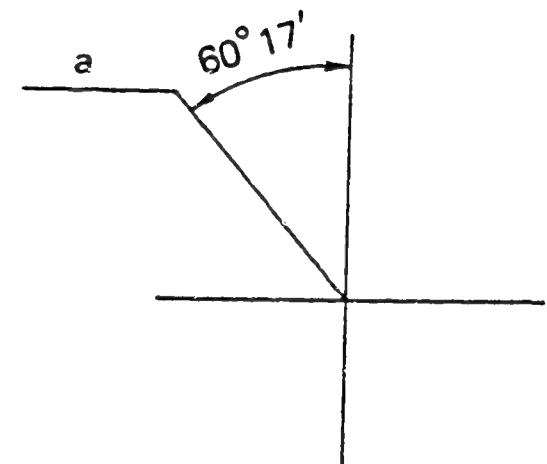
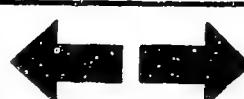


Fig. 11

Pump center line

a = Mark "Z"



ZEXEL - TEST VALUES

Injections pumps

BOSCH No.	:	9 400 610 101	1/4
ZEXEL No.	:	101631-9803	
Date	:	31.10.1990	(5)
Company	:	NISSAN DIESEL	
Engine	:	SD33 / 16700 C8600	

IP-Type number	:	101063-9371 / PES6A
Governor type number	:	105542-4221 / EP/RBD
		-MZ

TEST PREREQUISITES

Test oil	:	ISO-4113
Test oil inlet temperature °C	:	40.00...45.00
Inlet pressure	bar	1.6
Test nozzle holder combination	:	1 688 901 013
Opening pressure	bar	175
Test pressure line		
Inner x Outer Dia - Length	mm	2.00 x 6.00 x 600

PORT CLOSING

Prestroke	mm	: 2.15 ± 0.05
Rod position	mm	: -
Port closing mark Cyl. No.	:	-
Cam sequence	:	1-4-2-6-3-5
Port closing mark Cyl. No.	:	-
Port closing difference °NW	:	0-60-120-180-240-300
Tolerance	± °C	: 0.50 (0.75)

C1

ZEXEL - Test values

Injections pumps



Continued (Test values)

Injection Quantity :

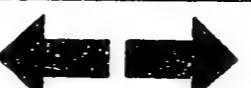
Adjusting Point	Rod Pos. (mm)	Speed (rpm)	Injection Q'ty (cc/1000 str.)	Difference (%)	Fixed	Remarks
	12.6	800	33.0 - 35.0	± 2.5	Rack	Basic
	12.3	1900	(36.5 - 39.7)	± 4	Rack	
	approx. 8.6	300	6.5 - 8.5	± 15	Rack	

Timing Advance Specification : EP/SCD
105622-1100

Speed (rpm)	500	1100	1900				
Advance Angle (deg)	Below 0.5	1.2-2.2	5.5-6.5				

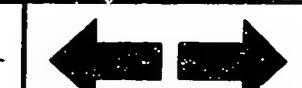
C2

ZEXEL - Test values
Injections pumps



C3

ZEXEL - Test values
Injections pumps



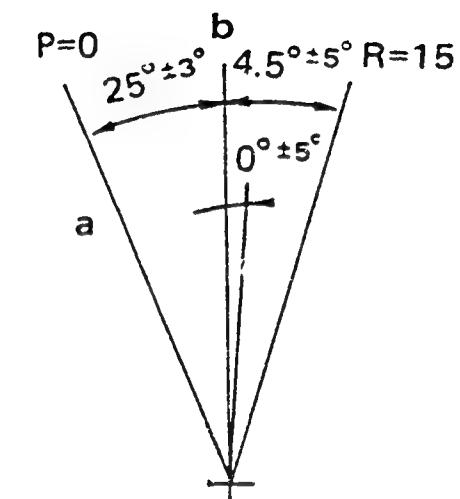
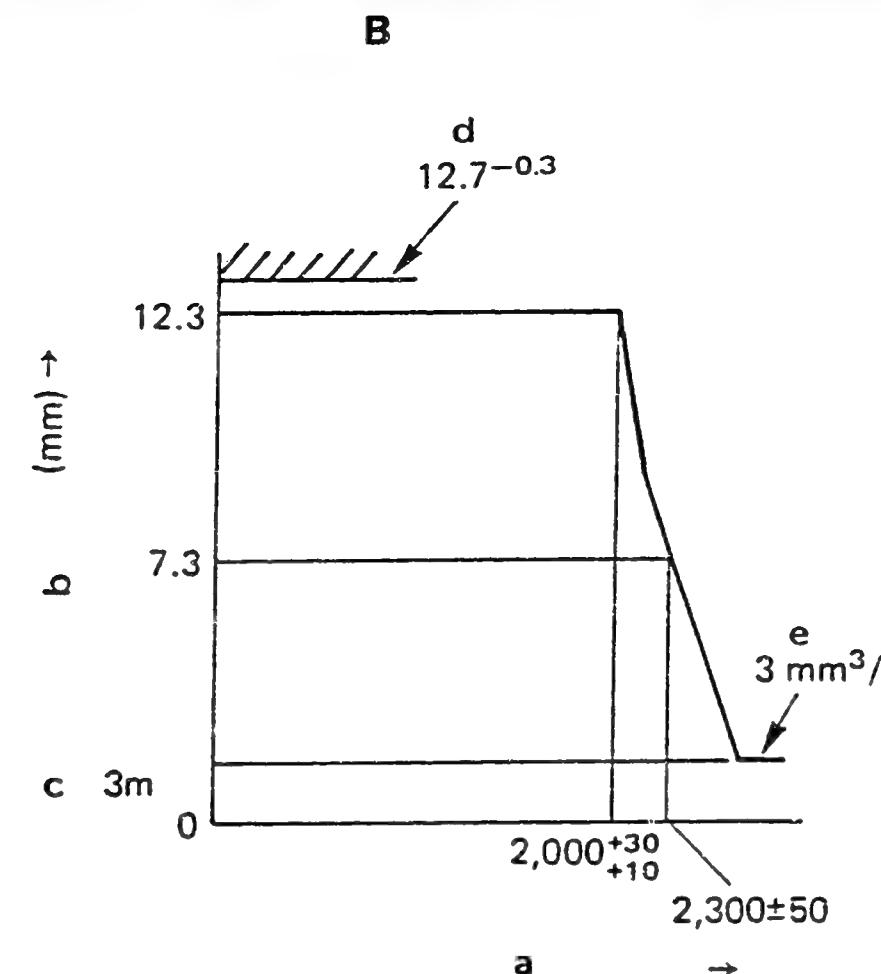
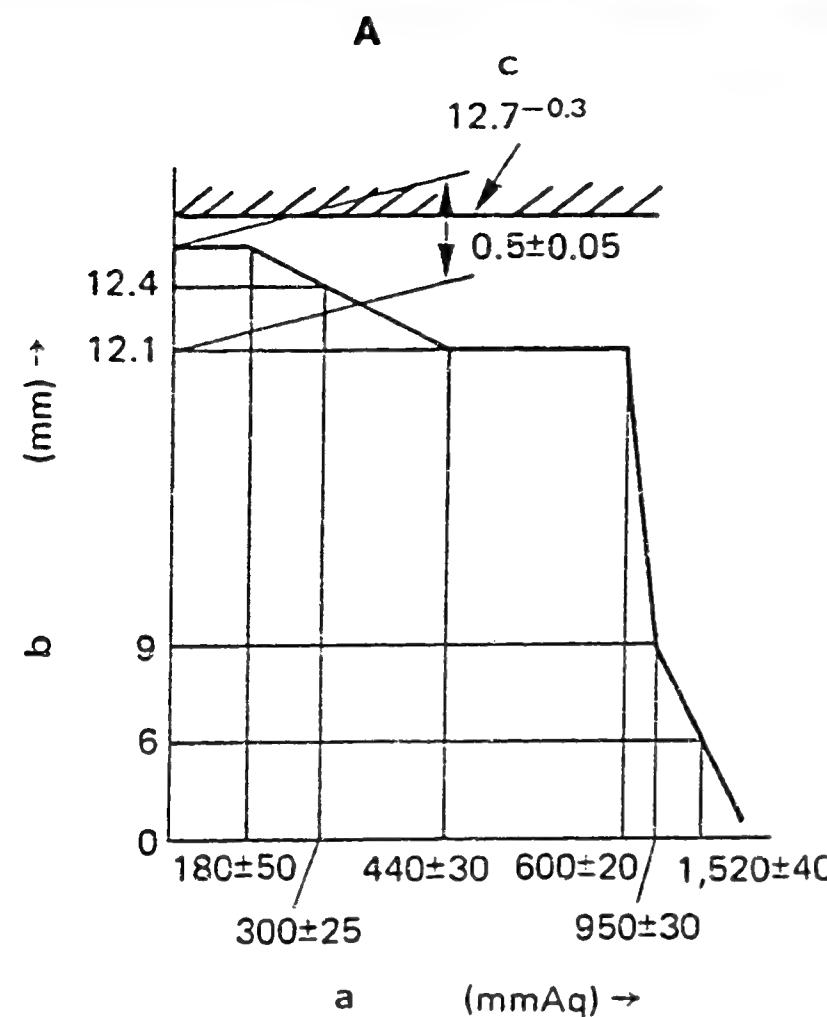


Fig. 12

GOVERNOR ADJUSTMENT

101631-9803 2/4

A = Pneumatic Governor

a = Negative pressure
b = Control rack position
c = Rack limit

AIR TIGHTNESS TEST

1. Increase the pressure of the pneumatic governor's negative pressure chamber to 500 mmAq at a pump speed of 500 rpm and a control rack position of approx. 12.6 mm.
2. Then, confirm that it takes 10 seconds or more for the negative pressure to fall from 500 mmAq to 480 mmAq.

B = Mechanical Governor

a = Pump speed (rpm)
b = Control rack position
c = Below
d = Rack limit
e = Below /st

a = Stop
b = Normal

C4

ZEXEL - Test values
 Injections pumps



C5

ZEXEL - Test values
 Injections pumps



■ ADJUSTMENT

A) Pneumatic Governor (Pump Speed: 500 rpm)

	Negative Pressure (mmAq)	Rack Position (mm)	Remarks
Smoke Set Screw Adjustment	0	12.6	<ul style="list-style-type: none"> • Adjust using spring capsule (6)
Torque Control Adjustment 1) Start of torque control spring movement 2) End of torque control spring movement 3) Confirm 4) Confirm torque control stroke	410 - 470 approx. 180 - -	12.6 12.6 - -	<ul style="list-style-type: none"> • Adjust thickness of shim (1) • Adjust thickness of shim (2) • Inspection: 0.4 - 0.6 mm
High-speed Control Adjustment	580 - 620	12.1	<ul style="list-style-type: none"> • Adjust thickness of shim (3)
Idling Adjustment	920 - 980 approx. 1520	9.0 6.0	<ul style="list-style-type: none"> • Adjust using spring capsule (4) • Confirm

B) Mechanical Governor (Negative pressure: 580 - 620 mmAq)

	Pump speed (rpm)	Rack Position (mm)	Remarks
Maximum Speed Control Adjustment	2010 - 2030 2250 - 2350 approx. 2600	12.3 7.3 below 3	<ul style="list-style-type: none"> • Adjust using screw (5) • Confirm • Confirm (Check the fuel injection quantity: below 3 cc/1000st)



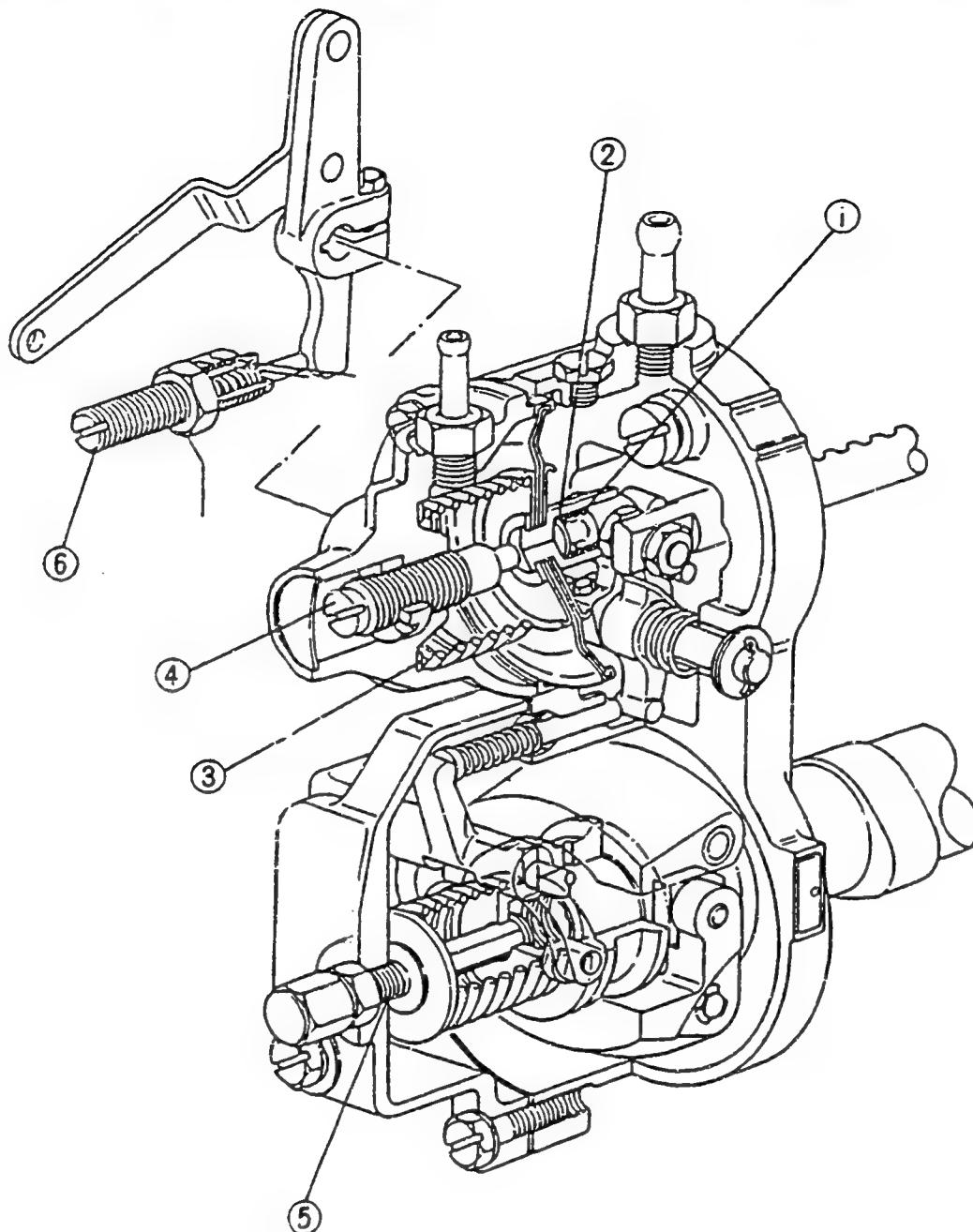


Fig. 13

- 1 = Shim
- 2 = Shim
- 3 = Shim
- 4 = Spring capsule
- 5 = Screw
- 6 = Spring capsule

101631-9803 3/4

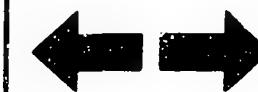
C8

ZEXEL - Test values
Injections pumps



C9

ZEXEL - Test values
Injections pumps



■ FINAL ADJUSTMENT

Smoke Setting			Fuel Injection Quantity Adjustment		
Pump Speed (rpm)	Negative Pressure (mmAq)	Injection Q'ty (cc/1000st)	Pump Speed (rpm)	Negative Pressure (mmAq)	Injection Q'ty (cc/1000st)
1900	12.3	36.5 - 39.7			

■ TIMING SETTING

At No. 1 plunger's beginning of injection position.

B.T.D.C.: 20°

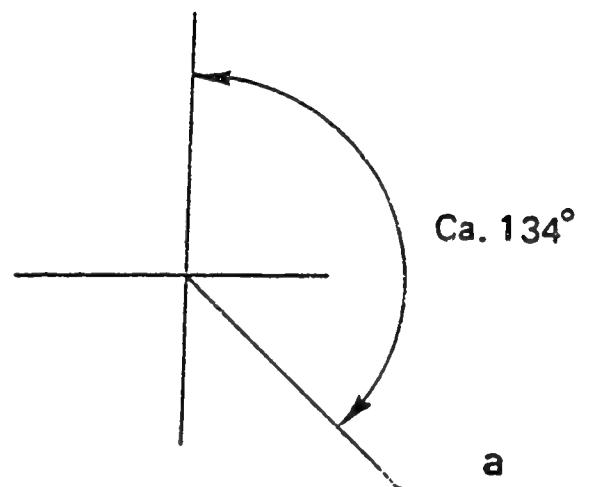


Fig. 14

Pump center line

a = Mark "Y"



ZEXEL - TEST VALUES

Injections pumps

<u>BOSCH No.</u>	:	9 400 610 072	1/3
<u>ZEXEL No.</u>	:	104302-6331	
<u>Date</u>	:	31.10.1990	[4]
<u>Company</u>	:	ISUZU	
<u>Engine</u>	:	2AA1A / 515601-1770	
<u>IP-Type number</u>	:	104300-0261 / PES2K	
<u>Governor type number</u>	:		

TEST PREREQUISITES

<u>Test oil</u>	:	ISO-4113
<u>Test oil inlet temperature</u>	°C :	40.00...45.00
<u>Inlet pressure</u>	bar :	1.6
<u>Test nozzle holder combination</u>	:	1 688 901 013
<u>Opening pressure</u>	bar :	175
<u>Test pressure line</u>		
<u>Inner x Outer Dia - Length</u>	mm :	2.00 x 6.00 x 600

POR T CLOSING

<u>Prestroke</u>	mm :	2.1 ± 0.05
<u>Rod position</u>	mm :	-
<u>Port closing mark</u>	Cyl. No. :	-
<u>Cam sequence</u>	:	1 - 2

<u>Port closing mark</u>	Cyl. No. :	-
<u>Port closing difference</u>	°NW :	0-90

<u>Tolerance</u>	+- °C:	0.50 (0.75)
------------------	--------	-------------

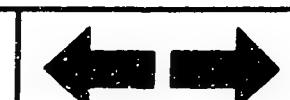


Injection Quantity :

Adjusting Point	Rod Pos. (mm)	Speed (rpm)	Injection Q'ty (cc/1000 str.)	Difference (%)	Fixed	Remarks
A	8.5	1050	33.5 - 35.5	± 2.5	Lever	Basic
B	approx. 5.1	350	5.3 - 7.3	± 14	Rack	

Timing Advance Specification :

Speed (rpm)						
Advance Angle (deg)						



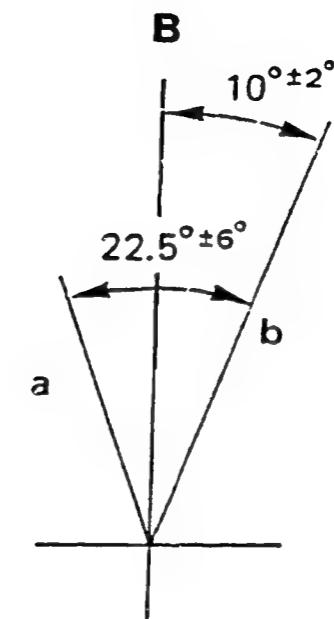
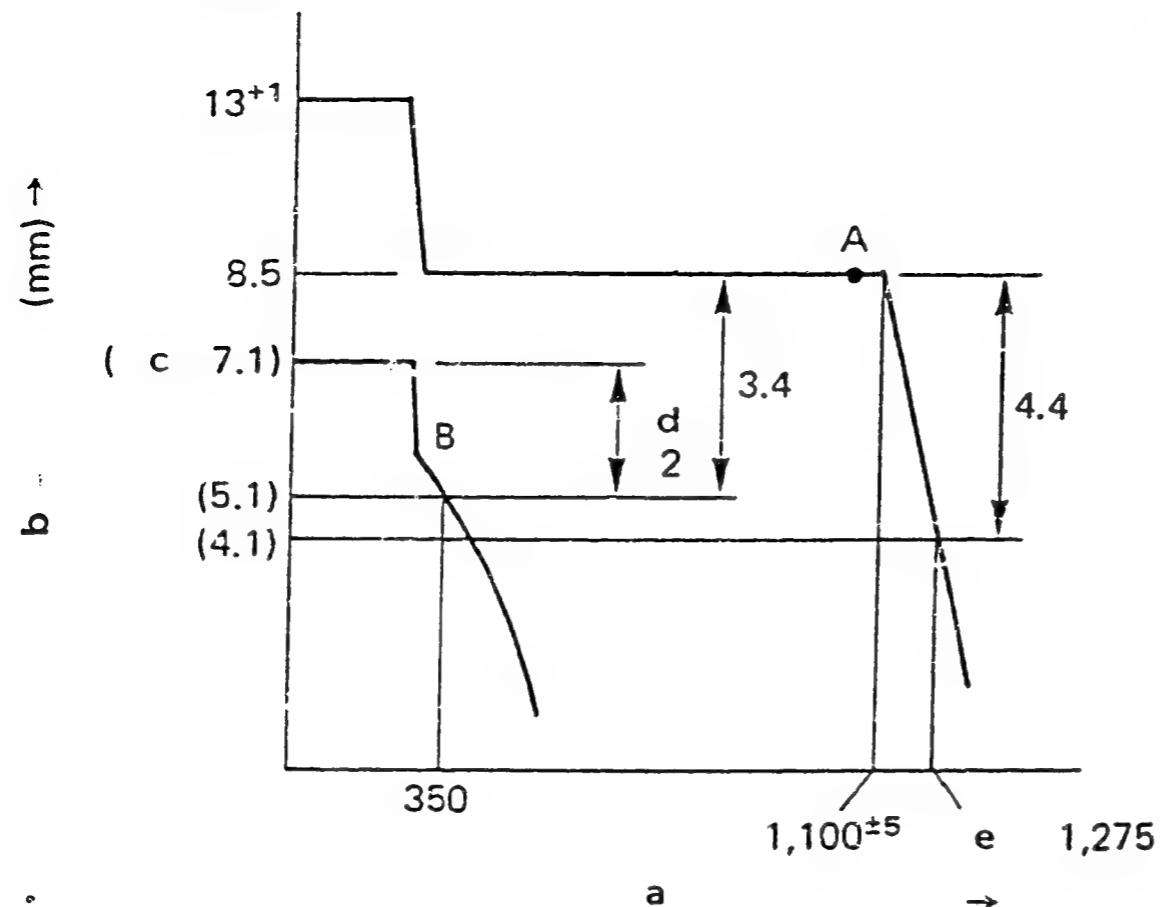


Fig. 15

GOVERNOR ADJUSTMENT

104302-6331 2/3

a = Pump speed (rpm)
 b = Control rack position
 c = Above
 d = Above
 e = Below

B = Speed Control Lever Angle
 a = Idling
 b = Full-speed

C15

ZEXEL - Test values
Injections pumps



C16

ZEXEL - Test values
Injections pumps



■ ADJUSTMENT

	Pump speed (rpm)	Rack position (mm)	Remarks
Full-Load Stopper Bolt Adjustment	1050 1050	8.5 8.5	<ul style="list-style-type: none"> • Adjust using screw (1) • Confirm injection quantity at point A. • Confirm the control lever angle (8° - 12°)
Maximum Speed Adjustment	Fix the control lever in the full-speed position		
	1095 - 1105 Below 1275	8.5 (4.1)	<ul style="list-style-type: none"> • Adjust using screw (2) • Confirm
Idling adjustment	350 0	(5.1) Above (7.1)	<ul style="list-style-type: none"> • Adjust using idling spring guide (3) • Confirm



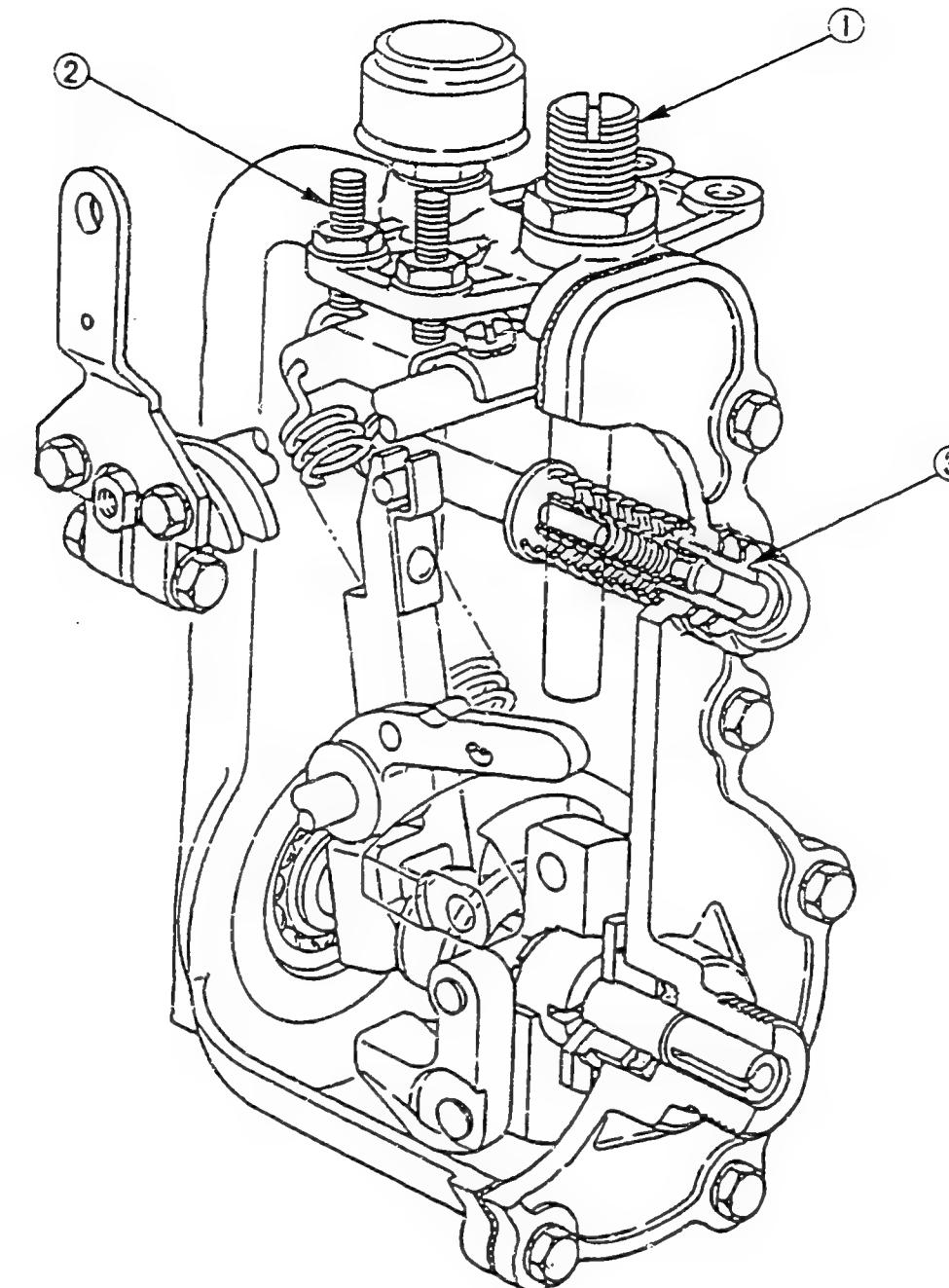


Fig. 16

104302-6331 3/3

- 1 = Screw
- 2 = Screw
- 3 = Idling spring guide

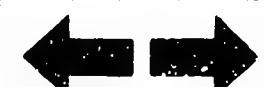
C19

ZEXEL - Test values
Injections pumps



C20

ZEXEL - Test values
Injections pumps



ZEXEL - TEST VALUES

Injections pumps

<u>BOSCH No.</u>	:	9 400 610 086	1/3
<u>ZEXEL No.</u>	:	104302-6420	
<u>Date</u>	:	31.10.1990	[2]
<u>Company</u>	:	MAZDA	
<u>Engine</u>	:	S126 /2251-2501-02-0	

<u>IP-Type number</u>	:	104300-0540 / PES2K
<u>Governor type number</u>	:	

TEST PREREQUISITES

<u>Test oil</u>	:	ISO-4113
<u>Test oil inlet temperature</u>	°C :	40.00...45.00
<u>Inlet pressure</u>	bar :	1.6
<u>Test nozzle holder combination</u>	:	1 688 901 013
<u>Opening pressure</u>	bar :	175
<u>Test pressure line</u>		
<u>Inner x Outer Dia - Length</u>	mm :	2.00 x 6.00 x 600

POR T CLOSING

<u>Prestroke</u>	mm :	1.95 ± 0.05
<u>Rod position</u>	mm :	-
<u>Port closing mark Cyl. No.</u>	:	-
<u>Cam sequence</u>	:	1 - 2
<u>Port closing mark Cyl. No.</u>	:	-
<u>Port closing difference °NW</u>	:	0 - 90
<u>Tolerance</u>	± °C:	0.50 (0.75)

D1

ZEXEL - Test values

Injections pumps



Continued (Test values)

Injection Quantity :

Adjusting Point	Rod Pos. (mm)	Speed (rpm)	Injection Q'ty (cc/1000 str.)	Difference (%)	Fixed	Remarks
A	8.0	1250	40.0 - 42.0	± 3	Lever	Basic
B	approx. 6.3	350	5.0 - 7.0	± 14	Lever	
C	8.4	1000	44.0	-	Lever	

Timing Advance Specification :

Speed (rpm)							
Advance Angle (deg)							

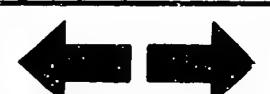
D2

ZEXEL - Test values
Injections pumps



D3

ZEXEL - Test values
Injections pumps



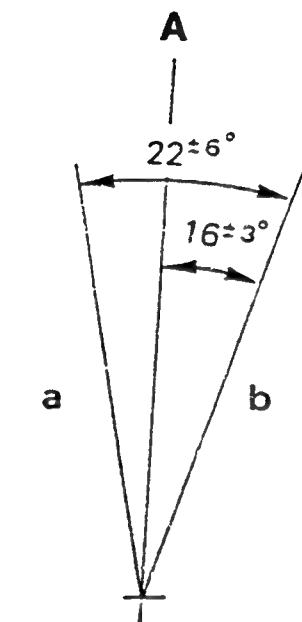
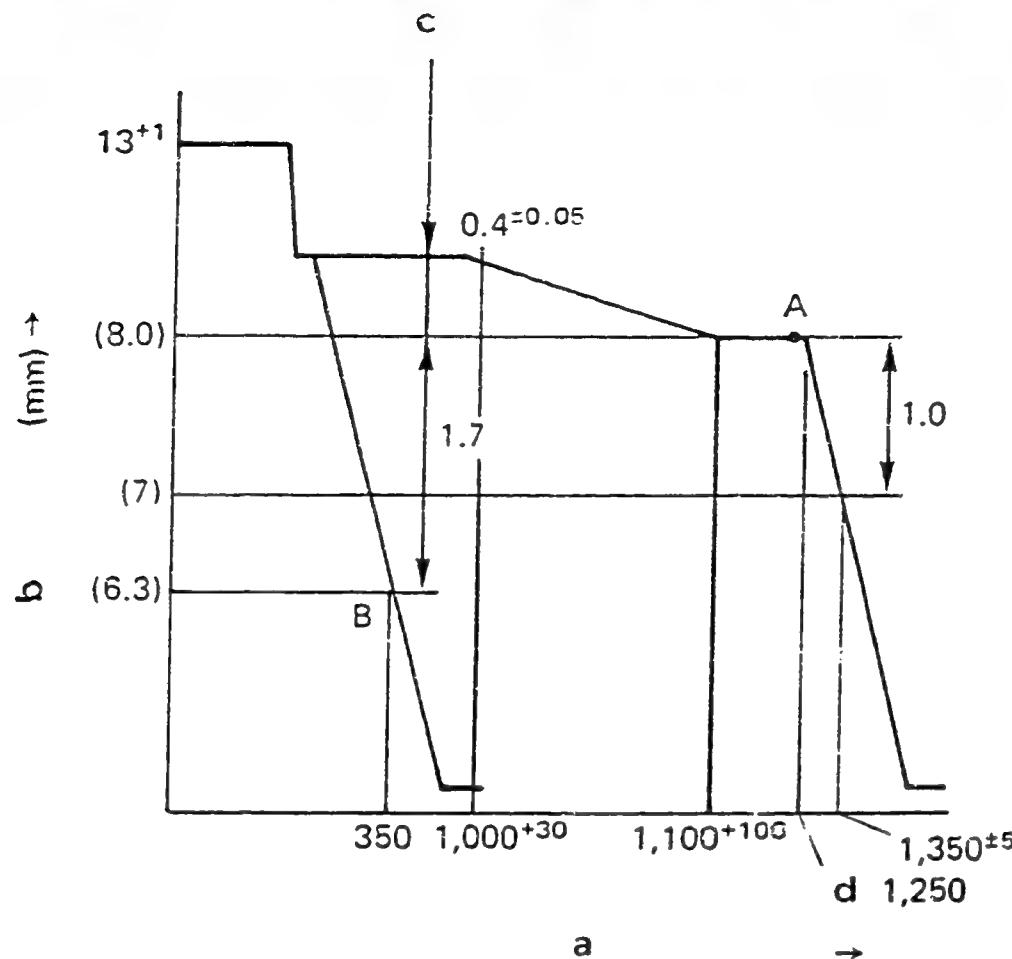


Fig. 17

GOVERNOR ADJUSTMENT

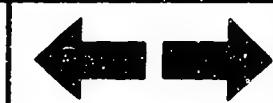
104302-6420 2/3

a = Pump speed (rpm)
b = Control rack position
c = Difference in control rack positions
 between 1250 rpm and 1000 rpm
d = Above

A = Speed Control Lever Angle
a = Idling
b = Full-speed

■ ADJUSTMENT

	Pump Speed (rpm)	Rack Position (mm)	Remarks
Full-load Adjustment (temporary)	1250 1250	8.0 8.0	<ul style="list-style-type: none"> • Adjust using screw (1) • Confirm injection quantity at point A • Confirm the control lever angle (13° - 19°)
Maximum Speed Adjustment	Fix the control lever in the full-speed position		
	1345 - 1355 Above 1250	(7.0) 8.0	<ul style="list-style-type: none"> • Confirm • Adjust using screw (2)
Idling Adjustment	350 1250 0	(6.3) 8.0 13 ⁺¹	<ul style="list-style-type: none"> • Adjust using idling spring guide • Confirm injection quantity at point A • Confirm
Stopper bolt Adjustment	100	(6.3) -1	<ul style="list-style-type: none"> • Adjust using screw (3)
Torque Control Spring Adjustment	Above 1250 1000 - 1030 Approx. 1100	8.0 8.3 - 8.5 8.0	<ul style="list-style-type: none"> • Move the control lever • Adjust using screw (4) • Torque control stroke 1 mm is adjusted by shims. • Confirm the torque control stroke is 0.4 mm.



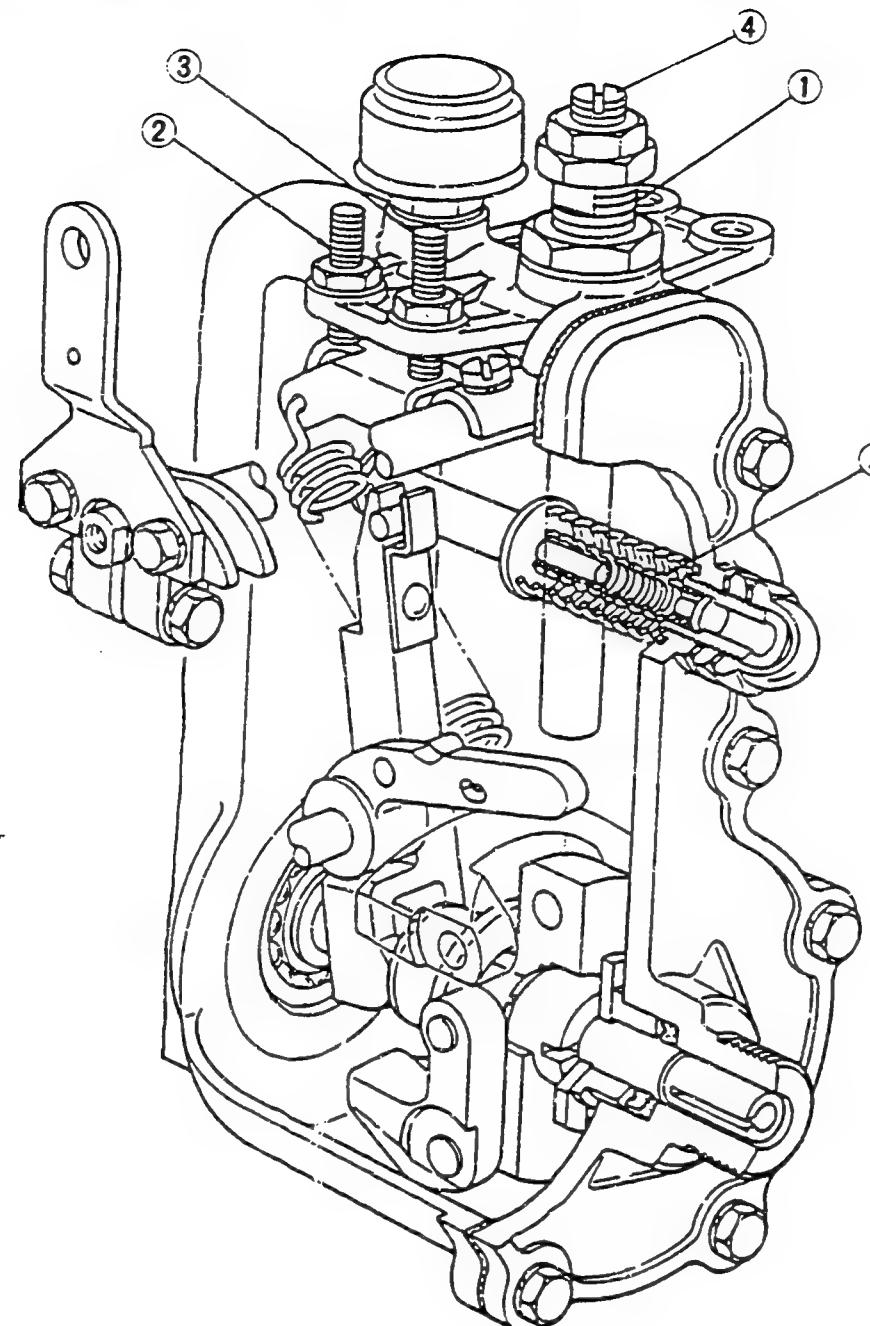


Fig. 18

104302-6420 3/3

- 1 = Screw
- 2 = Screw
- 3 = Screw
- 4 = Screw
- 5 = Idling spring guide

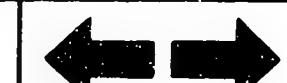
D8

ZEXEL - Test values
Injections pumps



D9

ZEXEL - Test values
Injections pumps



Test oil:
ISO 4113 od
SAE J967d

ZEXEL - TEST VALUES
Distributors pumps
Engine model: HA

BOSCH No.	9 460 610 424
ZEXEL No.	104740-0363
Date:	31.10.1990 [0]
Company:	MAZDA
No.	47831 3800C

Injection pump no. 104640-0333

(NP-VE4/10F1100RNP333)

Pump rot.: clockwise-viewed from drive side

Test-nozzle holder combination:
1 688 901 000

Test pressure line:
1 680 750 017

1. Setting values		Speed (rpm)	Setting values	Charge-air pressure bar (mmHg)	Difference (cc)
1-1	Timing device travel	1000	2.5 - 2.9 (mm)		
1-2	Supply pump pressure	1000	3.8 - 4.4 (kg/cm ²)		
1-3	Full load deliv. without charge-air pr.	1000	49.8 - 50.8 (cc/1000st)		3.5
	Full load deliv. with charge-air pres.		(cc/1000st)		
1-4	Idle speed regulation	350	10.8 - 14.8 (cc/1000st)		2.5
1-5	Start	100	50.0 - 70.0 (cc/1000st)		
1-6	Full-load speed regulation	1275	8.6 - 14.6 (cc/1000st)		4.0
1-7	Load-timer adjustment				
1-8					

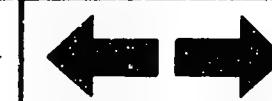
2. Test values

2-1 Timing device	N = rpm mm				
2-2 Supply pump	N = rpm kg/cm ²	500 2.2 - 2.8	1000 3.8 - 4.4	1100 4.1 - 4.7	
2-3 Overflow delivery	N = rpm cc/10s		1000 53.0 - 97.0		

2-4 Fuel injection quantities

Control lever position	Speed (rpm)	Fuel delivery (cc/1000 strokes)	Charge-air pres(mmHg)	Difference (cc)
End stop	1000	49.3 - 51.3		
	500	40.9 - 44.9		
	1000	49.3 - 51.3		
	1100	48.4 - 52.4		
	1275	8.1 - 15.1		
	1400	below 4.0		
Switch off	350	0		
Idle stop	350 below 620	10.8 - 14.8 0		
2-5 Solenoid		Cut-in voltage max.: 8 V Test voltage: 12 - 14 V		

3. Dimensions	
K	3.2 - 3.4 mm
KF	5.7 - 5.9 mm
MS	0.9 - 1.1 mm
BCS	- mm
Pre-st	0.18 - 0.22 mm
Control lever angle	
α	6 - 14 deg
A	4.4 - 9.6 mm
β	28 - 38 deg
B	8.7 - 12.3 mm
γ	- deg
C	- mm



Test oil:
ISO 4113 or
SAE J967d

ZEXEL - VALUES
Distributors pumps
Engine model: PN

BOSCH No.	9 460 610 448
ZEXEL No.	104740-0422
Date:	31.10.1990[0]
Company:	MAZDA
No.	PN4613800B

Injection pump no.: 104640-0394
Pump rot.: clockwise-viewed from drive side

(NP-VE4/10F2350RNP803)

Test-nozzle holder combination:
1 688 901 000

Test pressure line:
1 680 750 017

1. Setting values		Speed (rpm)	Setting values	Charge air pressure (mmHg)	Difference in delivery (cc)
1-1	Timing device travel	1500	6.0 - 6.4 (mm)		
1-2	Supply pump pressure	1500	5.3 - 5.7 (kg/cm ²)		
1-3	Full load deliv. without charge-air pr.	1500	31.3 - 32.3 (cc/1000st)		2.5
	Full load deliv. with charge-air press.		(cc/1000st)		
1-4	Idle speed regulation	410	6.0 - 8.0 (cc/1000st)		
1-5	Start	100	60.0 - 80.0 (cc/1000st)		
1-6	Full-load speed regulation	2635	10.4 - 14.4 (cc/1000st)		4.0
1-7	Load timer adjustment	1000	TA = 1.7-2.1(mm)		
1-8					

2. Test values

2-1 Timing device	N = rpm mm	500 below 1.0	875 1.5-2.7	1000 2.5-3.3	1500 5.9-6.5	2250 8.6-10.4	2350 9.4-10.2
2-2 Supply pump	N = rpm kg/cm ²				1500 5.3-5.7		2350 7.3- 7.9
2-3 Overflow delivery	N = rpm cc/10s				1500 51-95		
2-4 Fuel injection quantities							
Control lever position	Speed (rpm)	Fuel delivery (cc/1000st)	Charge-air pres(mmHg)	Difference in delivery (cc)			
End stop	1500 1000 2350 2635 2850	30.8 - 32.8 28.2 - 32.2 27.1 - 33.1 9.9 - 14.9 below 5.0					
Switch off	410	0					
Idle stop	410 500	6.0 - 8.0 below 3.0					
2-5 Solenoid	Cut-in voltage max.: 8 V Test voltage: 12 - 14 V						

3. Dimensions

K	3.2 - 3.4 mm
KF	5.62 - 5.82 mm
MS	1.1 - 1.3 mm
LDA	- mm
Full st.	2.78 mm
Control lever angle	
α	21 - 29 deg
A	4.1 - 7.7 mm
β	38 - 48 deg
B	12.8 - 15.8 mm
γ	- deg
C	- mm



1. Adjustment

1) Fix the control lever in the position satisfying the following conditions:

Boost Pressure: - mmHg
 Pump Speed : 1000 rpm
 Fuel Injection
 Quantity : 19.5 - 20.5 cc/1000st

2) With the control lever positioned as described in 1) above, adjust the governor sleeve so that the Timer Stroke conforms to the specified values.

2. Confirmation of Timer Characteristics

Fix the control lever in the position satisfying the following conditions, and confirm the Timer Stroke.

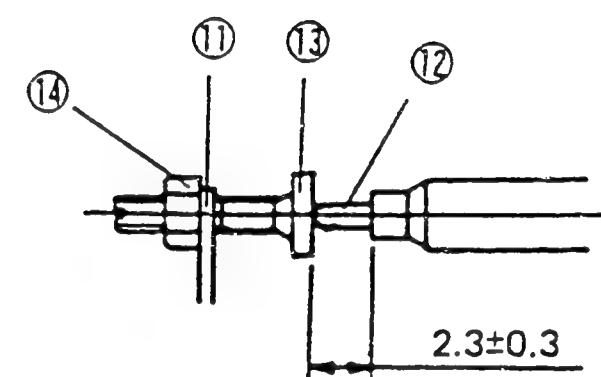
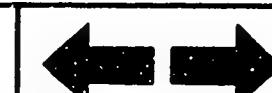


Fig. 19

Control lever position			Specified values	
Pump speed (rpm)	Fuel injection quantity (cc/1000st)	Boost pressure (mmHg)	Timer stroke (mm)	Timer stroke reduction value (mm)
1000	19.0 - 21.0	-		1.6 - 2.2
1000	8.5 - 11.5	-		0.5 - 1.9

■ DASHPOT ADJUSTMENT

1. Fix the control lever (11) in the idling position.
 2. Adjust the screw (13) so that the pushrod (12) protuder 2.3 ± 0.3 mm.



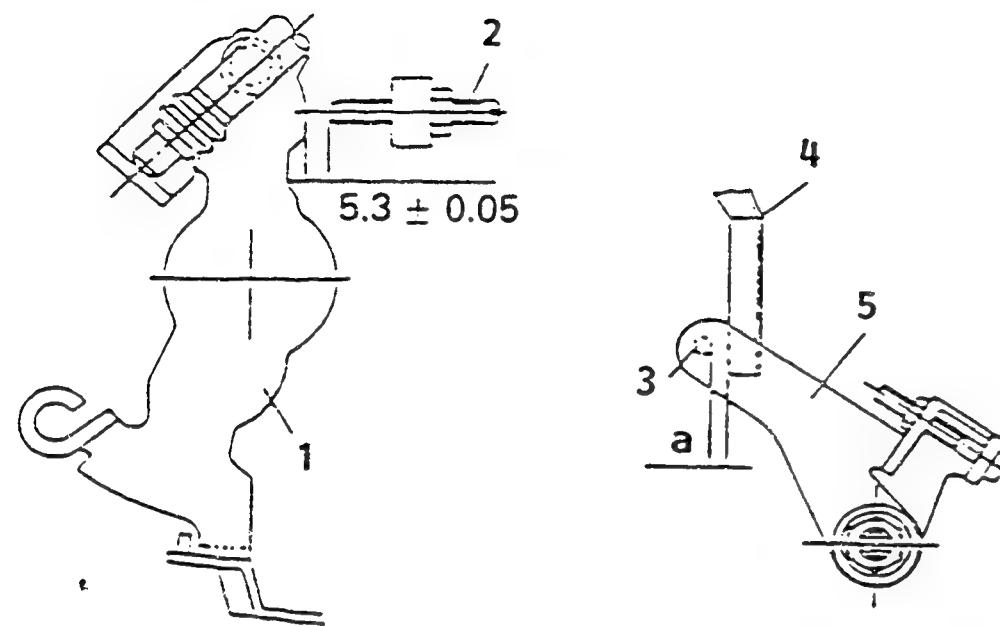


Fig. 20

1 = Control lever
2 = Idling stopper bolt
3 = Pin

■ W-CSD ADJUSTMENT

1. Timer stroke adjustment (refer to Figs. 20 and 21)

- 1) Using the graph (Fig. 21), determine the timer stroke according to the atmospheric temperature at the time of adjustment.
- 2) Adjust using the timer stroke adjusting bolt so that the timer stroke corresponds to the value determined in note 1) above.

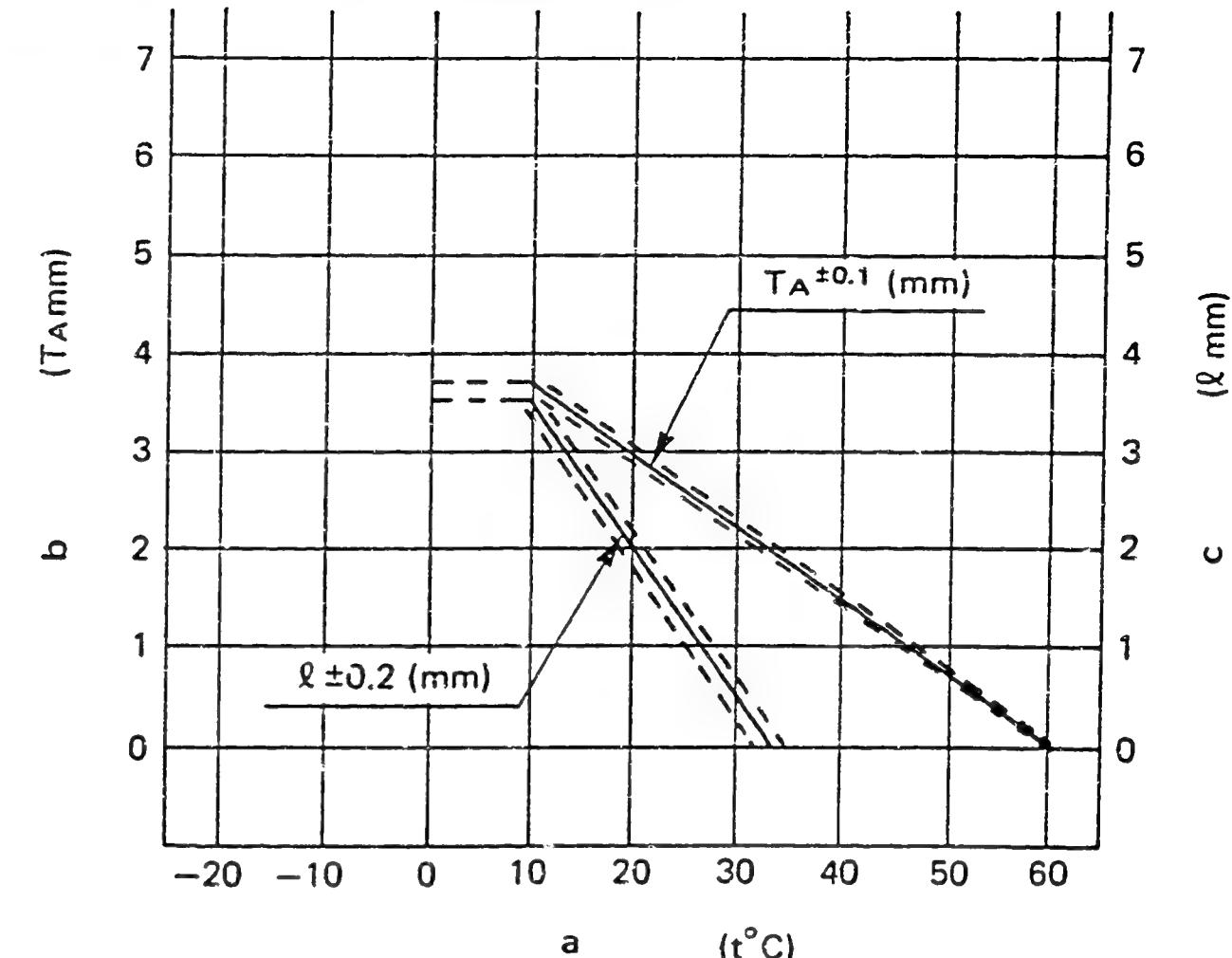


Fig. 21

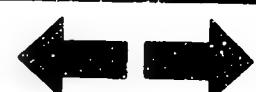
104740-0422 3/3

a = Atmospheric temperature
b = Timer stroke
c = Control lever

(Continued)

2. Fast Idle Adjustment (Refer to Figs. 20 and 21)

- 1) Insert a block gauge of 1 mm thickness in the gap between the control lever and the idling stopper bolt.
- 2) From Fig. 21 determine the dimension of the gap between the idling lever pin and the control lever according to the atmospheric temperature at the time of adjustment.
- 3) Adjust using the fast idle adjusting screw so that the gap corresponds to the value determined in note 2) above.



Test oil:
ISO 4113 or
SAE J967d

ZEXEL- TEST VALUES
Distributor pumps
Engine model: AD23

1/2

BOSCH No. 9 460 610 416
ZEXEL No. 104740-9541
Date: 31.10.1990 [3]
Company: NISSAN DIESEL
No. 16700 02N70

Injection pump no.: 104640-9541 (NP-VE4/10F2150RNP537)

Pump rot.: clockwise-viewed from drive side Test-nozzle holder combination:
1 688 901 000

Test pressure line:
1 680 750 017

1. Setting values		Speed (rpm)	Setting values		Charge-air pressure bar (mmHg)	Difference (cc)
1-1	Time device travel	1100	2.3 - 2.7 (mm)			
1-2	Supply pump pressure	1100	3.5 - 4.1 (kg/cm ²)			
1-3	Full load deliv. without charge air pre	1100	44.1 - 45.1 (cc/1000st)			3.0
	Full load deliv. with charge air press.		(cc/1000st)			
1-4	Idle speed regulation	350	4.5 - 8.5 (cc/1000st)			2.0
1-5	Start	100	45.0 - 80.0 (cc/1000st)			
1-6	Full-load speed regulation	2350	28.3 - 32.3 (cc/1000st)			

2. Test values

	Solenoid timer N = rpm mm	ON	OFF		
		1100 3.7 - 4.7	1100 2.2-2.8	1700 4.1-5.1	2500 6.4-7.4
2-2 Supply pump	N = rpm kg/cm ²		1100 3.5-4.1	1700 4.9-5.5	2150 5.8-6.4
2-3 Overflow delivery	N = rpm cc/10s	1100 43.0 - 87.0			

2-4 Fuel delivery quantities

Speed control lever pos.	Speed (rpm)	Fuel delivery (cc/1000st)	Charge-air pres(mmHg)	Difference (cc)
End stop	1100 600 2150 2350 2550 2700	43.6 - 45.6 41.5 - 45.5 35.9 - 40.1 27.8 - 32.8 5.3 - 12.4 below 5.0		
Switch off	350	0		
Idle-stop	350 450	4.5 - 8.5 below 2.0		
2-5 Solenoid	Cut-in voltage max.: 8 V Test voltage: 12 - 14 V			

3. Dimensions

K	3.2 - 3.4 mm
KF	5.7 - 5.9 mm
MS	0.9 - 1.1 mm
BCS	- mm
Prest.	- mm
Control lever angle	
α	50 - 58 deg
A	23.7 - 28.3 mm
β	37 - 47 deg
B	10.7 - 14.8 mm
γ	- deg
C	- mm



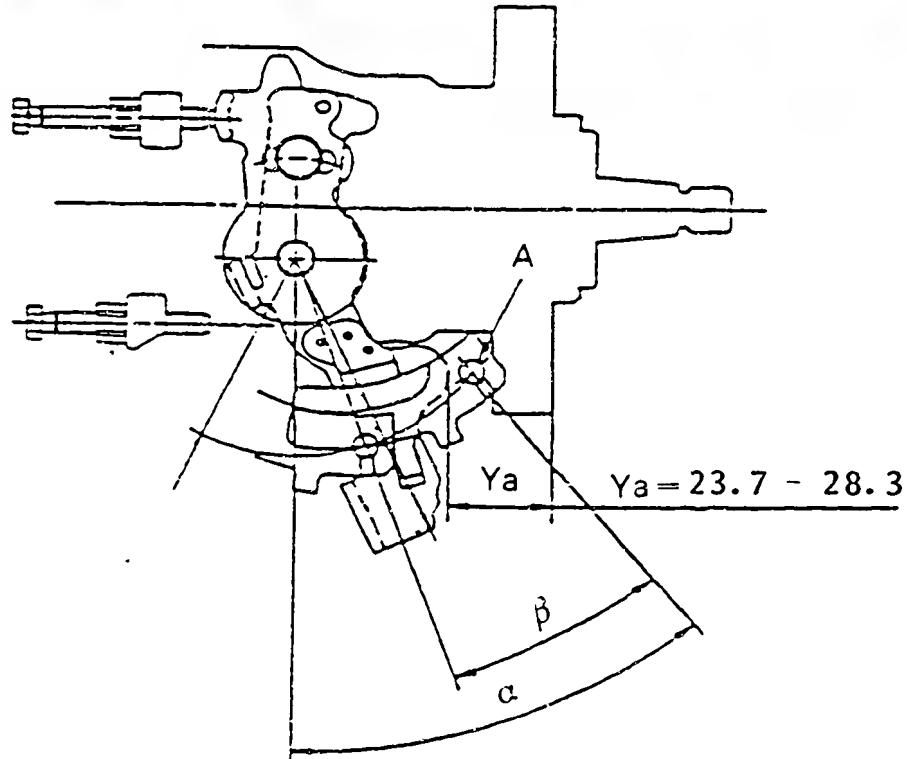


Fig. 22

104740-9541 2/2

■ Control Lever Angle Measurement Position

- 1) Measure the control lever angles (α , β , γ) at hole A.

Note

■ If there is no designation in the specifications for the Solenoid Timer's ON - OFF position, then the position should be regarded as OFF.

Test oil:
ISO 4113 or
SAE J967d

ZEXEL - TEST VALUES
Distributors pumps
Engine model: TD25

1/2

BOSCH No. 9 460 610 444
ZEXEL No. 104740-9623
Date: 31.10.1990 [2]
Company: NISSAN DIESEL
No. 16700 44G03

Injection pump no.: 104640-9623

(NP-VE4/10F2150RNP663)

Pump rot.: clockwise-viewed from drive side

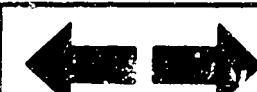
Test-nozzle holder combination:

1 688 901 000

Test pressure line:

1 680 750 017

1. Setting values		Speed (rpm)	Setting values		Charge-air pressure bar (mmHg)	Difference (cc)
1-1	Timing device travel	1700	4.7 - 5.1 (mm)			
1-2	Supply pump pressure	1700	5.6 - 6.2 (kg/cm ²)			
1-3	Full load deliv. without charge-air pr.	1100	48.0 - 49.0 (cc/1000st)			3.0
	Full load deliv. with charge-air pres.		(cc/1000st)			
1-4	Idle speed regulation	350	4.5 - 8.5 (cc/1000st)			2.0
1-5	Start	100	45.0 - 80.0 (cc/1000st)			
1-6	Full-load speed regulation	2500	10.1 - 14.1 (cc/1000st)			
1-7	Load-timer adjustment					
1-8						
2. Test values						
2-1	Timing device	N = rpm mm	1100 2.0 - 3.2	1700 4.6 - 5.2	2300 6.0 - 7.0	
2-2	Supply pump	N = rpm kg/cm ²	1100 4.1 - 4.7	1700 5.6 - 6.2	2150 6.6 - 7.2	
2-3	Overflow delivery	N = rpm cc/10s	1100 43.0 - 87.0			
2-4	Fuel injection quantities					
Control lever position	Speed (rpm)	Fuel delivery (cc/1000 strokes)	Charge-air pres(mmHg)	Difference (cc)		
End stop	1100 600 2150 2300 2500 2700	47.5 - 49.5 45.1 - 49.1 38.5 - 47.8 28.3 - 37.3 9.6 - 14.6 below 5.0				
Switch off	350	0				
Idle stop	350 450	4.5 - 8.5 below 3.0				
2-5 Solenoid	Cut-in voltage max.: 8 V Test voltage: 12 - 14 V					
3. Dimensions						
K	3.2 - 3.4 mm					
KF	5.7 - 5.9 mm					
MS	0.9 - 1.1 mm					
BCS	- mm					
Prest	- mm					
Control lever angle						
α	51.5 - 59.5 deg					
A	24.3 - 28.7 mm					
β	31° - 41° deg					
B	9.3 - 12.9 mm					
γ	- deg					
C	- mm					



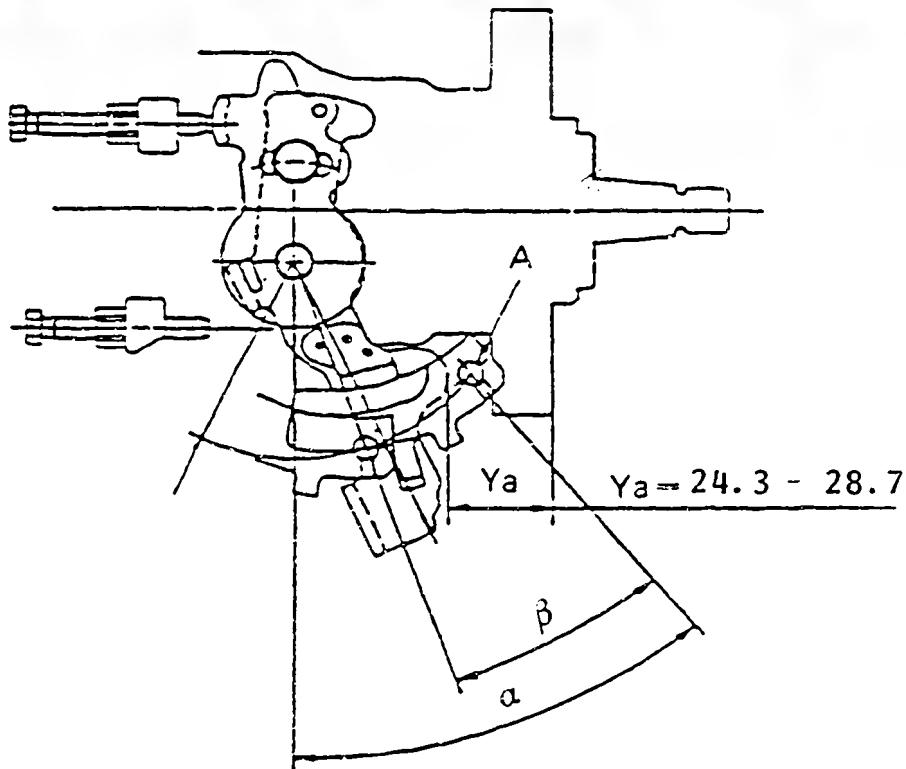


Fig. 23

104740-9623 2/2

■ Control Lever Angle Measurement Position

- 1) Measure the control lever angles (α , β , γ) at hole A.

Note

■ If there is no designation in the specifications for the Solenoid Timer's ON - OFF position, then the position should be regarded as OFF.

Test oil
ISO 4113 or
SAE J967d

ZEXEL- TEST VALUES
Distributor pumps
Engine model: TD25

1/2

BOSCH No. 9 460 610 445
ZEXEL No. 104740-9782
Date: 31.10.1990 [1]
Company: NISSAN DIESEL
No. 16700 21T12

Injection pump no.: 104640-9782

(NP-VE4/10F2150RNP682)

Pump rot.: clockwise viewed from drive side

Test-nozzle holder combination:

1 688 901 000

Test pressure line:
1 680 750 017

1. Setting values		Speed (rpm)	Setting values			Charge-air pressure bar (mmHg)	Difference (cc)
1-1	Timing device travel	1100	S/T ON	3.9 - 4.7 (mm)	OFF	2.4 - 2.8 (kg/cm ²)	*) S/T = Solenoid timer
1-2	Supply pump pressure	1100	S/T ON	4.5 - 5.3 (mm)	OFF	3.5 - 4.1 (kg/cm ²)	
1-3	Full load deliv. without charge air pre	1100	48.0 - 49.0 (cc/1000st)			3.0	2.0
	Full load deliv. with charge air press.		(cc/1000st)				
1-4	Idle speed regulation	350	4.5 - 8.5 (cc/1000st)			3.0	2.0
1-5	Start	100	45.0 - 80.0 (cc/1000st)				
1-6	Full-load speed regulation	2500	10.1 - 14.1 (cc/1000st)			3.0	2.0
1-7	Load-timer adjustment						

2. Test values

2-1 Timing device	Solenoid timer N = rpm mm	ON		OFF		
		1100	3.8-4.8	1100	1700	2300
2-2 Supply pump	N = rpm kg/cm ²	1100	1700	1100	1700	2150
		4.5-5.3	5.9-6.7	3.5-4.1	4.9-5.5	5.8-6.4

2-3 Overflow delivery

2-4 Fuel injection quantities	Speed control lever pos.	Fuel delivery (cc/1000st)		Charge-air pres(mmHg)	Difference (cc)
		ON	OFF		
End stop	1100	47.5 - 49.5			
	600	45.1 - 49.1			
	2150	38.5 - 42.8			
	2300	28.3 - 37.3			
	2500	9.6 - 14.6			
	2700	below 5.0			
Switch off	350	0			
Idle-stop	350	4.5 - 8.5			
	450	below 3.0			
2-5 Solenoid	Cut-in voltage max.: 8 V Test voltage: 12 - 14 V				

3. Dimensions

K	3.2 - 3.4 mm
KF	5.7 - 5.9 mm
MS	0.9 - 1.1 mm
BCS	- mm
Prestr.	- mm
Control lever angle	
α	50 - 58 deg
A	10.7 - 14.2 mm
β	31 - 41 deg
B	9.3 - 12.9 mm
γ	- deg
C	- mm



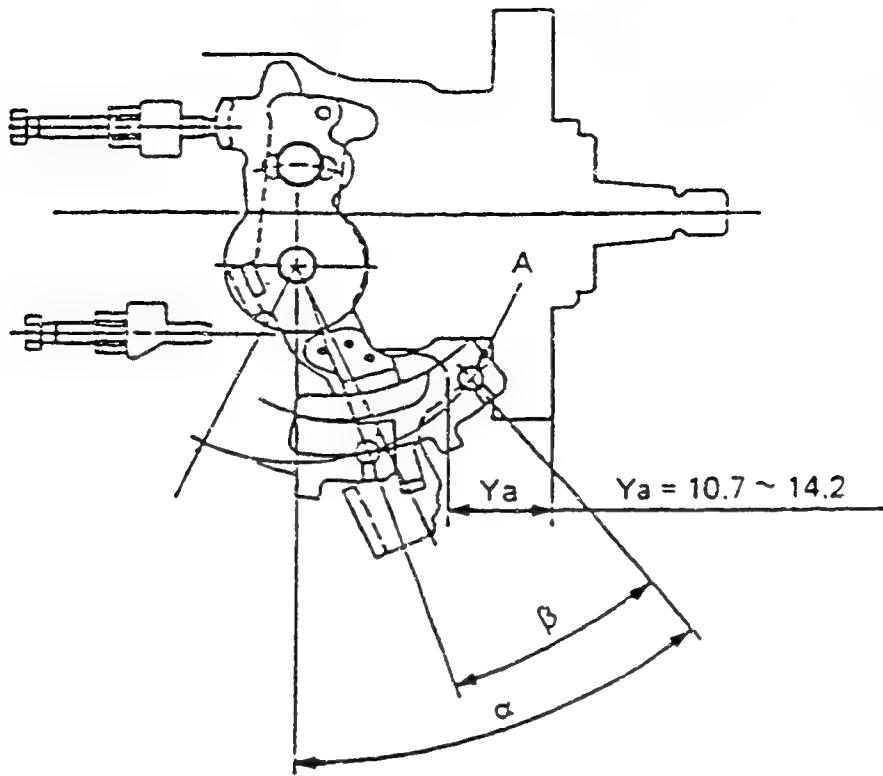


Fig. 24

104740-9782 2/2

■ Control Lever Angle Measurement Position

- 1) Measure the control lever angles (α , β , γ) at hole A.

Note

■ If there is no designation in the specifications for the Solenoid Timer's ON - OFF position, then the position should be regarded as OFF.

Test oil
ISO 4113 or
SAE J967d

ZEXEL- TEST VALUES
Distributor pumps
Engine model: 4JA1

BOSCH No.	9 460 610 392
ZEXEL No.	104741-1292
Date:	31.10.1990 [1]
Company:	ISUZU
No.	8-94426-850-1

Injection pump no.: 104641-1182

(NP-VE4/11F1900RNP420)

Pump rot.: clockwise viewed from drive side

Test-nozzle holder combination:

1 688 901 000

Test pressure line:

1 680 750 017

1. Setting values		Speed (rpm)	Setting values		Charge-air pressure bar (mmHg)	Difference (cc)
1-1	Timing device travel	1550	1.7 - 2.1 (mm)			
1-2	Supply pump pressure	1550	5.1 - 5.5 (kg/cm ²)			
1-3	Full load deliv. without charge air pre	1000	42.5 - 43.5 (cc/1000st)			3.5
	Full load deliv. with charge air press.			(cc/1000st)		
1-4	Idle speed regulation	390	5.5 - 9.5 (cc/1000st)			2.0
1-5	Start	100	75.0 - 105.0 (cc/1000st)			
1-6	Full-load speed regulation	2250	13.1 - 19.1 (cc/1000st)			
1-7	Load-timer adjustment					4.5

2. Test values

2-1 Timing device	Solenoid timer N = rpm mm	ON		OFF	
		690-890 0.5	1400 - 1500 0.5	1550 1.6-2.2	1850 5.3-6.2
2-2 Supply pump	N = rpm kg/cm ²	1000 3.1-3.7	1550 5.1-5.5	1850 6.0-6.6	
2-3 Overflow delivery	N = rpm cc/10s	1550 67 - 110			

2-4 Fuel injection quantities

Speed control lever pos.	Speed (rpm)	Fuel delivery (cc/1000st)	Charge-air pres(mmHg)	Difference (cc)
End stop	1000 500 700 1350 1700 2000 2250 2350	41.1 - 48.1 35.1 - 42.1 35.1 - 39.1 42.5 - 46.5 41.8 - 46.8 29.4 - 36.4 12.6 - 19.6 below 12.1		
Switch off	390	0		
Idle- stop	390 550	5.5 - 9.5 below 3.0		
2-5 Solenoid	Cut-in voltage max.: 8 V Test voltage: 12 - 14 V			

3. Dimensions

K	2.7 - 2.9 mm
KF	4.9 - 5.1 mm
MS	0.9 - 1 1 mm
BCS	- mm
Prestr.	0.43 - 0.47 mm

Control lever angle

α	14 - 22 deg
A	2.5 - 7.6 mm
β	28 - 38 deg
B	8.1 - 11.9 mm
γ	- deg
C	- mm

E1

ZEXEL - Test values

Injections pumps



E2

ZEXEL - Test values

Injections pumps



Test oil:
ISO 4113 or
SAE J967d

ZEXEL - TEST VALUES
Distributors pumps
Engine model: 4JA1AG

BOSCH No. 9 460 610 356
ZEXEL No. 104741-1771
Date: 31.10.1990 [1]
Company: ISUZU
No. 8-94471-053-1

Injection pump no.: 104641-1771
Pump rotation: Counter-clockwise viewed
from drive side

(NP-VE4/11F1900LNP652)

Test-nozzle holder combination: 1 688 901 000 Test pressure line: 1 680 750 017

1. Setting values		Speed (rpm)	Setting values	Charge-air pressure bar (mmHg)	Difference in delivery (cc)
1-1	Timing device travel	1500	2.1 - 2.5 (mm)		
1-2	Supply pump pressure	1500	5.1 - 5.5 (kg/cm ²)		
1-3	Full-load deliv. without charge-air pres	1000	39.0 - 40.0 (cc/1000st)		3.0
	Full-load deliv. with charge-air press.		(cc/1000st)		
1-4	Idle speed regulation	390	5.5 - 9.5 (cc/1000st)		2.0
1-5	Start	100	75.0 - 105.0 (cc/1000st)		
1-6	Full-load speed regulation	2100	13.1 - 19.1 (cc/1000st)		4.5

2. Test values		ON		OFF		3. Dimensions
2-1 Timing device	Solenoid timer N = rpm mm	450-650 0.5	1200-1300 0.5		1500 2.0-2.6	
2-2 Supply pump	N = rpm kg/cm ²	1000 3.0 - 3.6	1500 5.1-5.5		1950 6.5-7.1	
2-3 Overflow delivery	N = rpm cc/10s	1500 65.0-108.0				

2-4 Fuel injection quantities				
Control lever position	Speed (rpm)	Fuel delivery (cc/1000st)	Charge-air pres(mmHg)	Difference in delivery (cc)
End stop	1000	32.5 - 40.5		
	500	32.1 - 40.1		
	700	32.6 - 37.6		
	1350	39.2 - 45.2		
	1800	35.9 - 41.9		
	2000	28.2 - 37.2		
	2100	12.6 - 19.6		
	2300	below 5.0		
Switch off	390	0		
Idle stop	390	5.5 - 9.5		
	550	below 3.0		
2-5 Solenoid	Cut-in voltage max.: 8 V Test voltage: 12 - 14 V			

3. Dimensions

K	2.7 - 2.9 mm
KF	4.9 - 5.1 mm
MS	0.9 - 1.1 mm
LDA	- mm
Pre-st.	0.43 - 0.47 mm

Control lever angle

α	14.0 - 22.0 angle
A	2.5 - 7.6 mm
β	32.0 - 42.0 angle
B	9.3 - 13.2 mm
γ	- angle
C	- mm



Test oil:
ISO 4113 or
SAE J967d

ZEXEL-TEST VALUES
Distributor pumps
Engine model: 4JB1CDT

1/3

BOSCH No. 9 460 610 413
ZEXEL No. 104741-6850
Date: 31.10.1990 [0]
Company: ISUZU
No. 8-97010-946-0

Injection pump no : 104641-1744

(NP-VE4/11F1900RNP578)

Pump rotation: clockwise-viewed from
drive side

Test-nozzle holder combination:
1 688 901 000

Test pressure line:
1 680 750 017

1. Test values		Speed (rpm)	Setting values		Charge-air pressure bar (mmHg)	Difference (cc)
1-1	Timing device travel	1700	5.0 - 5.4 (mm)		590 - 610	
1-2	Supply pump pressure	1700	5.2 - 5.6 (kg/cm ²)		590 - 610	
1-3	Full-load deliv.without charge air pres	900	50.9 - 51.9 (cc/1000st)		340 - 360	4.5
	Full-load deliv. with charge air press.	1250	59.0 - 61.0 (cc/1000st)		590 - 610	3.5
1-4	Idle speed regulation	385	3.1 - 7.1 (cc/1000st)		0	2.0
1-5	Start	100	60.0 - 100.0 (cc/1000st)		0	
1-6	Full-load speed regulation	2300	19.3 - 25.4 (cc/1000st)		590 - 610	4.5

2. Test values

	Solenoid timer N = rpm mm	ON	OFF		
		550 above 0.5	1450 2.1-2.9	1700 4.9-5.5	1850 5.8-6.6
2-2 Supply pump	N = rpm kg/cm ²	500 4.0- 6.0	500 above 0.8	1450 4.3-4.9	1700 5.2-5.6
2-3 Overflow delivery	N = rpm cc/10s			1700 73 - 150	

2-4 Fuel injection quantities

Speed control lever pos.	Speed (rpm)	Fuel delivery (cc/1000st)	Charge-air pres (mmHg)	Difference (cc)
End stop	900	50.4 - 52.4	340 - 360	
	600	33.1 - 41.1	90 - 110	
	750	39.8 - 43.8	170 - 190	
	1250	62.7 - 64.7	590 - 610	
	1800	54.6 - 61.6	590 - 610	
	2300	18.8 - 25.8	590 - 610	
	2500	below 5.0	590 - 610	
Switch off	385	0	0	
Idle stop	385	3.1 - 7.1	0	
	500	below 3.0	0	
2-5 Solenoid	Cut-in voltage max.: 8 V Test voltage: 12 - 14 V			

3. Dimensions

K	2.7 - 2.9 mm
KF	5.4 - 5.6 mm
MS	0.8 - 1.0 mm
BCS	4.4 - 4.6 mm
Prestr.	- mm

Control lever angle

α	14 - 22 deg
A	11.3 - 14.7 mm
β	32 - 42 deg
B	10.2 - 13.6 mm
γ	- deg
C	- mm



■ MICROSWITCH ADJUSTMENT SPECIFICATIONS

Injection quantity specifications Boost pressure = 600mmHg(0.81 kg/cm ²)	
I/P speed (rpm)	Injection quantity (mm ³ /1000st)
1000	26.9 - 28.9

1. Fix the dummy bolt in a position where pump speed is 1000 rpm and injection quantity is 26.9 - 28.9.
2. Move the microswitch in the direction of the arrow from the ON to the OFF position. and fix it in this position.
3. Remove the dummy bolt's fixing bracket and confirm that the microswitch is OFF when it contacts the idle lever, and ON when it contacts the full speed lever.

Note:

On the pump tester with the lever fixed so that N_p and Q are as specified above (using the idle screw or the shim) it is possible to adjust the microswitch without using the dummy bracket.

When using the idle screw, it is necessary to adjust idling after adjusting the microswitch.

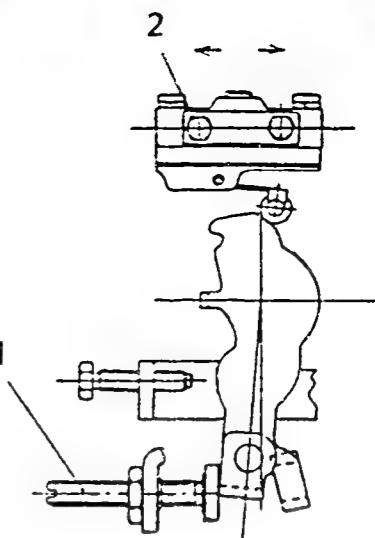
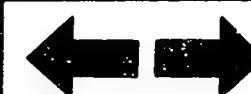


Fig. 25

1 = Dummy bolt
 2 = Micro switch fix bolt
 $(T = 0.2 - 0.3 \text{ kg-m})$



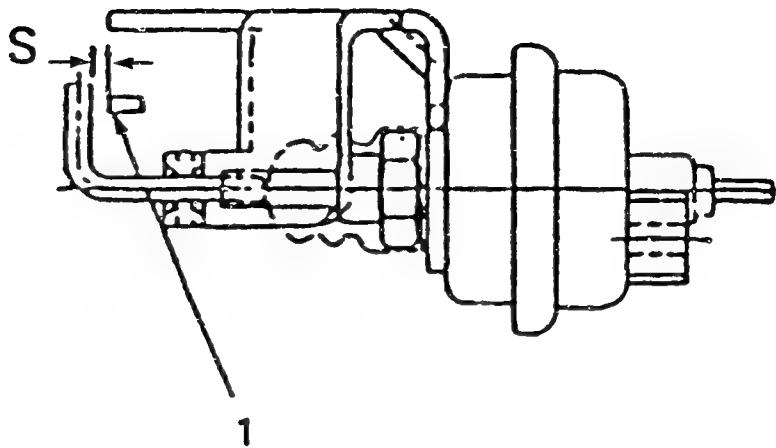


Fig. 26

104741-6850 3/3

1 = Control lever (idle position)

■ V-FICD ADJUSTMENT

1. Adjust the bracket so that the clearance S is 1 + 1 mm.
2. Apply 400 mmHg negative pressure to the inside of the actuator and confirm that the actuator shaft moves the full stroke.

Test oil:
ISO 4113 or
SAE J967d

ZEXEL - TEST VALUES
Distributors pumps
Engine model: LD20

1/4

BOSCH No. 9 460 610 447
ZEXEL No. 104749-2501
Date: 31.10.1990 [0]
Company: NISSAN
No. 16700 05E60

Injection pump no. 104649-2501

(NP-VE4/9F2500RNP728)

Pump rot.: clockwise-viewed from drive side

Test-nozzle holder combination: 1 688 901 000 Test pressure line: 1 680 750 017

1. Setting values		Speed (rpm)	Setting values	Charge-air pressure bar (mmHg)	Difference (cc)
1-1	Timing device travel	900	1.3 - 1.7 (mm)		
1-2	Supply pump pressure	900	3.2 - 3.8 (kg/cm ²)		
1-3	Full load deliv. without charge-air pr.	900	32.5 - 33.5 (cc/1000st)		
	Full load deliv. with charge-air pres.		(cc/1000st)		
1-4	Idle speed regulation	350	4.7 - 7.7 (cc/1000st)		
1-5	Start	100	40.0 - 60.0 (cc/1000st)		
1-6	Full-load speed regulation	2700	10.9 - 16.9 (cc/1000st)		
1-7	Load-timer adjustment				
1-8					

2. Test values

2-1 Timing device	N = rpm mm	900	1800	2300	
		1.2 - 1.8	5.5 - 6.7	7.7 - 8.9	
2-2 Supply pump	N = rpm kg/cm ²	900	1800	2500	
		3.1 - 3.9	5.1 - 5.9	6.8 - 7.6	
2-3 Overflow delivery	N = rpm cc/10s	900			
		35.0 - 79.0			

2-4 Fuel injection quantities

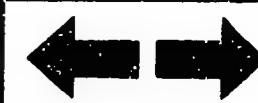
Control lever position	Speed rpm	Fuel delivery (cc/1000 strokes)	Charge-air pres(mmHg)	Difference (cc)
End stop	900	32.0 - 34.0		
	600	31.2 - 35.2		
	2300	30.6 - 34.6		
	2700	10.4 - 17.4		
	2800	below 6.0		
Switch off	350	0		
Idle stop	350	4.2 - 8.2		
	500	below 4.5		2.5
Partial load	900	4.1 - 14.1		
2-5 Solenoid	Cut-in voltage max. 8 V Test voltage: 12 - 14 V			

3. Dimensions

K	3.2 - 3.4 mm
KF	5.7 - 5.9 mm
MS	1.1 - 1.3 mm
BCS	- mm
Pre-st.	- mm

Control lever angle

α	21 - 29 deg
A	7.6 - 11.7 mm
β	39 - 49 deg
B	11.9 - 15.6 mm
γ	10.5 - 11.5 deg
C	5.5 - 6.1 mm



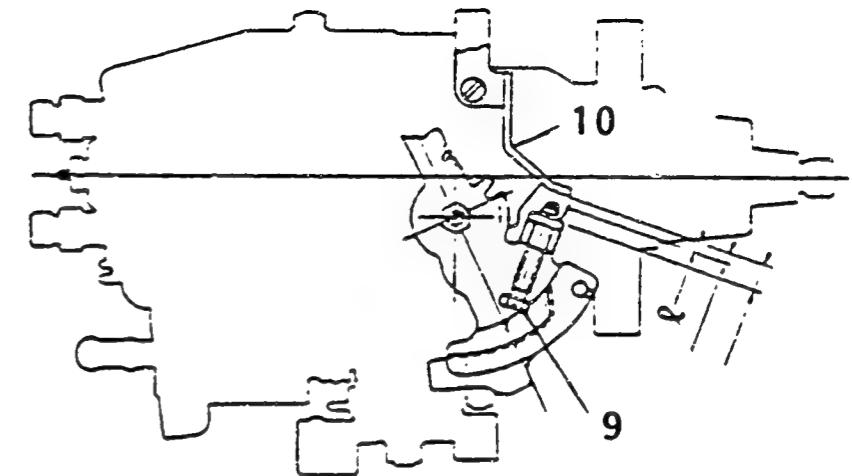
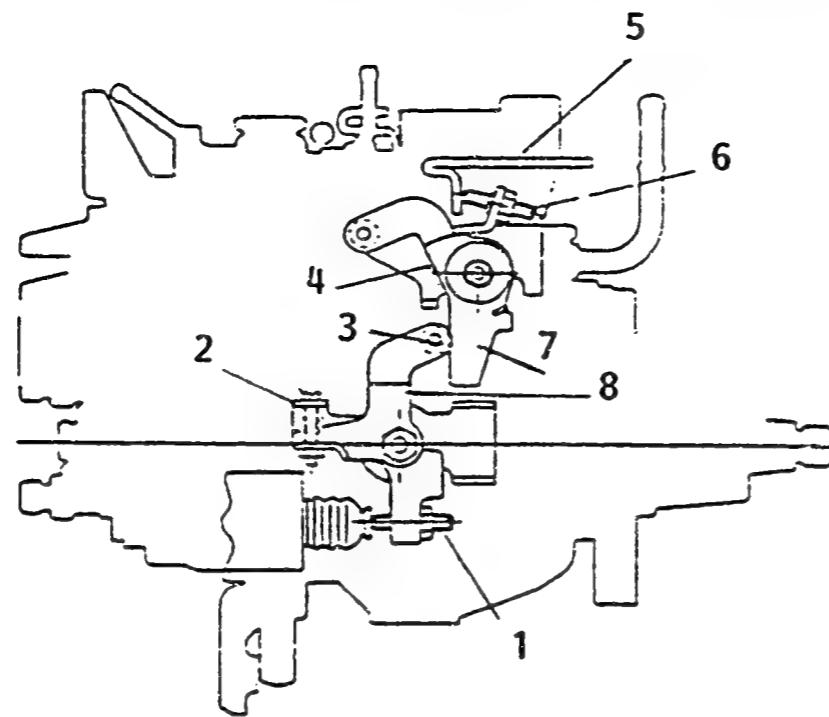


Fig. 27

104749-2501 2/4

1 = Timer stroke adjusting screw
 2 = Idling adjusting bolt
 3 = Lever roller
 4 = Aligning mark

5 = Control lever
 6 = Intermediate lever set screw
 7 = Intermediate lever
 8 = CSD lever

9 = Idling stopper bolt
 10 = Bracket

■ W-CSD ADJUSTMENT

1. Timer stroke adjustment (adjust to the thick line)

1) Calculate the timer stroke from Fig. 28 according to the atmospheric temperature at the time of adjustment.

2) Adjust using the timer stroke adjusting screw so that the timer stroke is as calculated in Fig. 28 (diagramm).

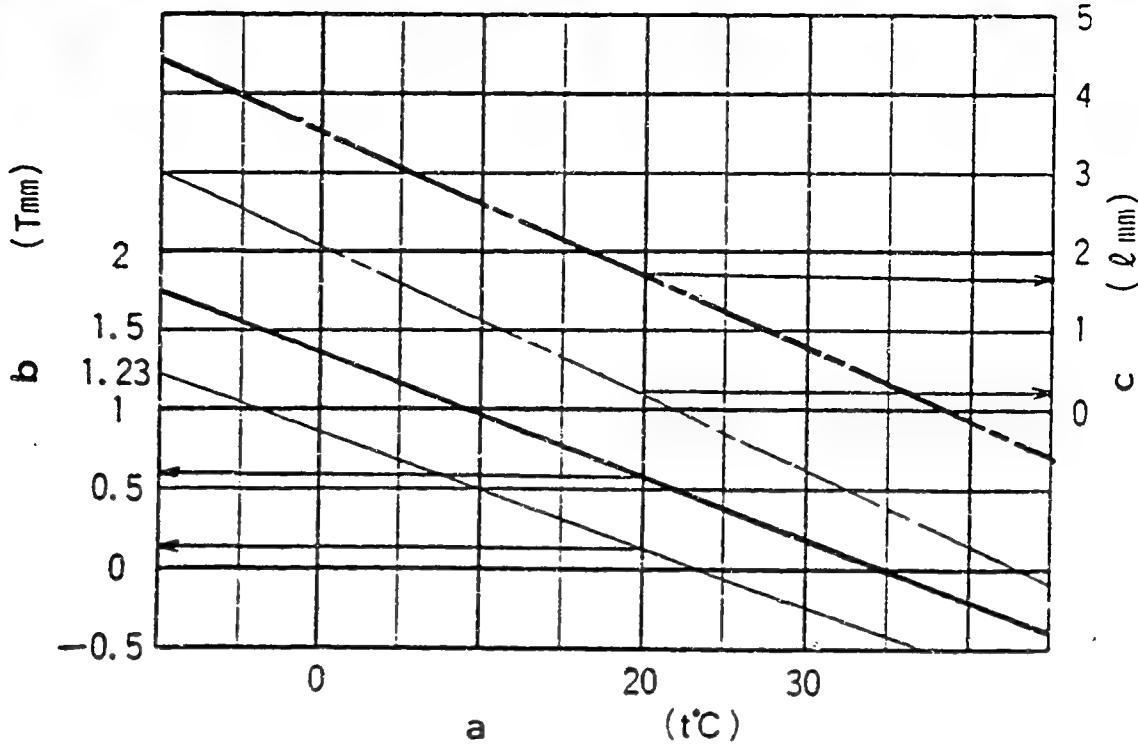


Fig. 28 (Continued)

a = Atmospheric temperature

b = Timer stroke ($T^{\pm 0.1} \text{ mm}$)

c = Gap between control lever and
adjusting stopper bolt

Thick line: For temporary adjustment

Thin line: For final adjustment

Formula for calculating timer stroke: (Fig. 28)

$$T = -0.0367 t + 1.424$$

Formula for calculating control lever and idling
stopper bolt gap:

$$l = -0.095 t + 3.6.$$

2. Intermediate lever position adjustment

- 1) Insert a block gauge (thickness gauge) of 0.25 ± 0.05 mm thickness between the bracket and the idling stopper bolt.
- 2) Align the intermediate lever with the aligning mark.
- 3) Adjust the intermediate lever set screw so that the control lever and the intermediate lever set screw are in contact, and then fix in position using the locknut.

104749-2501 3/4

3. CSD lever adjustment

- 1) Calculate the block gauge dimension $l \pm 0.05$ mm from (Fig. 28) according to the atmospheric temperature at the time of adjustment.
- 2) Insert the block gauge (thickness gauge) selected in (Fig. 28) between the bracket and the idling stopper bolt.
- 3) Using the idling bolt, adjust so that the CSD lever roller and intermediate lever are in contact.



4. Final adjustment

After completing the adjustment, screw the timer stroke adjusting screw two turns clockwise.

(Move from the temporary adjustment chart to the final adjustment chart).

- * This W-CSD's timer stroke operations are effective at atmospheric temperatures of 27°C or above. Therefore, to make adjustment at normal temperatures possible, after adjusting to the substitute characteristics, tighten the timer stroke adjusting screw two turns.

Note:

1. The temperature of the wax must be below 30°C when adjusting.
2. When inserting a block gauge (thickness gauge) between the control lever (bracket) and the idling stopper bolt, use the idling adjusting bolt to separate the CSD lever and intermediate lever so that no excessive force is exerted on them.



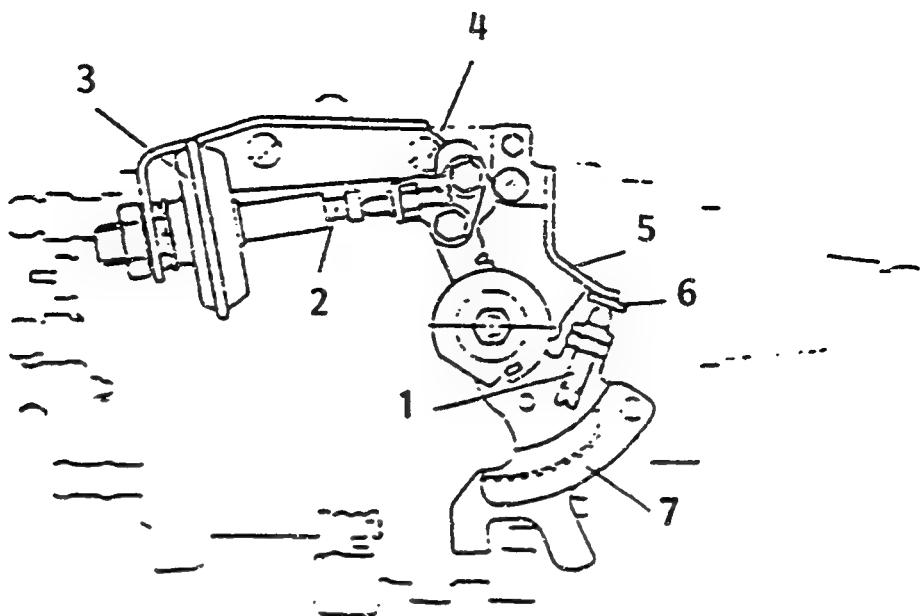


Fig. 29

104749 2501 4/4

- 1 = Idling stopper bolt
- 2 = Push rod
- 3 = Dashpot
- 4 = Dashpot adjusting screw
- 5 = Bracket
- 6 = Block gauge
- 7 = Control lever

■ DASH POT ADJUSTMENT

1. Insert a block gauge (thickness gauge) of thickness 3.8 ± 0.05 mm in the gap between the control lever and the bracket.
2. With the control lever positioned as described in 1. above, adjust the dashpot adjusting screw so that the dashpot adjusting screw and the push rod are in contact.
Fix the screw using the nut.

Test oil
ISO 4113 or
SAE J957d

ZEXEL - TEST VALUES
Distributor pumps
Engine model: C240

1/2

BOSCH No.	9 460 610 446
ZEXEL No.	104749-6811
Date:	25.10.1990 [1]
Company:	ISUZU
No.	8-94470-554-1

Injection pump no.: 104649-6041

(NP-VE4/9F1250LNP616)

Pump rot.: Counter-clockwise-viewed from
drive side

Test-nozzle holder combination:
1 688 901 000

Test pressure line:
1 680 750 017

1. Setting values		Speed (rpm)	Setting values		Charge-air pressure bar (mmHg)	Difference (cc)
1-1	Timing device travel	1000	2.3 - 2.7 (mm)			
1-2	Supply pump pressure	1000	3.9 - 4.3 (kg/cm ²)			
1-3	Full load deliv. without charge air pr.	1000	36.4 - 37.4 (cc/1000st)			2.5
	Full load deliv. with charge air press.					
1-4	Idle speed regulation	350	5.0 - 9.0 (cc/1000st)			2.0
1-5	Start	100	45.0 - 51.0 (cc/1000st)			
1-6	Full-load speed regulation	1375	5.8 - 9.8 (cc/1000st)			2.5
1-7	Load-timer adjustment					
1-8						

2. Test values

2-1 Timing device	N = rpm mm		1000 2.2-2.8	1250 3.1-4.3	1375 3.7-4.5	
2-2 Supply pump	N = rpm kg/cm ²	600 2.8-3.4	1000 3.9-4.3	1250 4.4-5.0		
2-3 Overflow delivery	N = rpm cc/10s		1000 48 - 92			

2-4 Fuel injection quantities

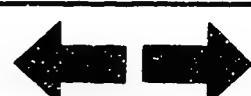
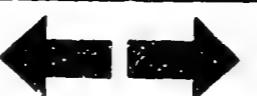
Speed control lever pos.	Speed (rpm)	Fuel delivery (cc/1000st)	Charge-air pres (mmHg)	Difference (cc)
End stop	1000	35.9 - 37.9		
	600	34.2 - 38.2		
	1250	36.8 - 40.8		
	1375	5.8 - 10.3		
	1425	below 4.0		
Switch off	350	0		
Idle- stop	350	5.0 - 9.0		
	400	below 4.0		
2-5 Solenoid	Cut-in voltage max. 8 V Test voltage: 12 - 14 V			

3. Dimensions

K	3.2 - 3.4 mm
KF	5.7 - 5.9 mm
MS	1.1 - 1.3 mm
BCS	- mm

Control lever angle

α	21 - 29 deg
A	13.3 - 15.9 mm
β	33 - 43 deg
B	10.3 - 13.8 mm
γ	- deg
C	- mm



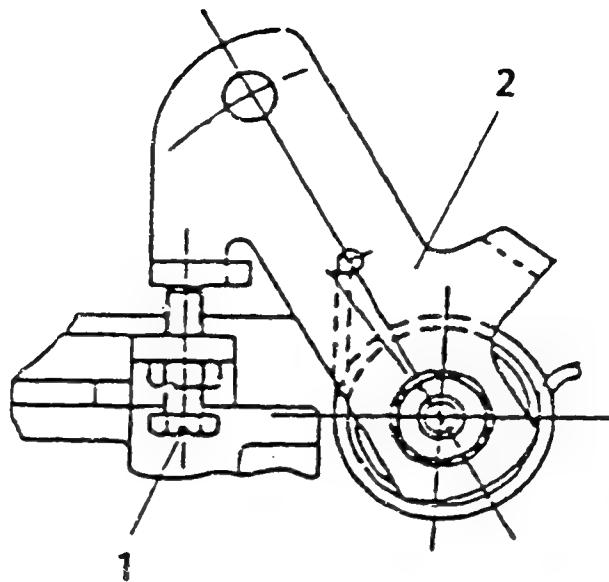


Fig. 30

104749-6811 2/2

1 = Stop lever
2 = Adjusting bolt

■ STARTING INJECTION QUANTITY ADJUSTMENT

Adjust the starting injection quantity (item 1-5) using the adjusting bolt (Fig. 30).

Test oil
ISO 4113 or
SAE J967d

ZEXEL - TEST VALUES
Distributor pumps
Engine model: LD28

BOSCH No. 9 460 610 429
ZEXEL No. 104760-2150
Date: 25.10.1990 [2]
Company: NISSAN
No. 16700 V0791

Injection pump no.: 104660-2002 (NP-VE6/10F2500RNP1)

Pump rot.: Clockwise-viewed from drive side

Test-nozzle holder combination:

1 688 901 000

Test pressure line:

1 680 750 017

1. Setting values		Speed (rpm)	Setting values		Charge-air pressure bar (mmHg)	Difference (cc)
1-1	Timing device travel	1200	2.4 - 3.0 (mm)			
1-2	Supply pump pressure	1800	5.7 - 6.3 (kg/cm ²)			
1-3	Full load deliv. without charge air pr. Full load deliv. with charge air press.	1200	33.8 - 34.8 (cc/1000st)			2.5
1-4	Idle speed regulation	350	6.7 - 9.7 (cc/1000st)			
1-5	Start	100	above 47.0 (cc/1000st)			
1-6	Full-load speed regulation	2700	7.0 - 13.0 (cc/1000st)			
1-7	Load-timer adjustment					
1-8						

2. Test values

2-1 Timing device	N = rpm mm		1200 2.3-3.1	1800 4.8-6.0	2300 7.7-8.6	
2-2 Supply pump	N = rpm kg/cm ²	800 3.3-4.1	1800 5.6-6.4	2500 7.1-7.9		
2-3 Overflow delivery	N = rpm cc/10s	1000 53.0-97.0				

2-4 Fuel injection quantities

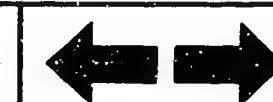
Speed control lever pos.	Speed (rpm)	Fuel delivery (cc/1000st)	Charge-air pres (mmHg)	Difference (cc)
End stop	1200 600 2300 2700 2800	33.3 - 35.3 27.0 - 31.0 26.4 - 32.4 6.5 - 13.5 below 5.0		
Switch off	350	0		
Idle-stop	350 500	6.2 - 10.2 below 4.0		
2-5 Solenoid		Cut-in voltage max. 8 V Test voltage: 12 - 14 V		

3. Dimensions

K	3.2 - 3.4 mm
KF	6.54 - 6.74 mm
MS	1.7 - 1.9 mm
BCS	- mm
Pre-st.	- mm

Control lever angle

α	21 - 29 deg
A	2.5 - 8.0 mm
β	39 - 49 deg
B	11 - 16 mm
γ	10.5 - 11.5 deg
C	6.7 - 7.3 mm



Test oil
ISO 4113 or
SAE J967d

ZEXEL - TEST VALUES
Distributor pumps
Engine model: RD28-T

BOSCH No. 9 460 610 423
ZEXEL No. 104769-2152
Date: 31.10.1990 [1]
Company: NISSAN
No. 16700 22J00

Injection pump no.: 104669-2152

(NP-VE6/9F2300RNP57)

Pump rot.: Clockwise-viewed from drive side

Test-nozzle holder combination:
1 688 901 000Test pressure line:
1 680 750 017

1. Setting values		Speed (rpm)	Setting values		Charge-air pressure bar (mmHg)	Difference (cc)
1-1	Timing device travel	900	1.1 - 1.5 (mm)		342 - 362	
1-2	Supply pump pressure	900	3.5 - 4.1 (kg/cm ²)		342 - 362	
1-3	Full load deliv. without charge air pr.	600	31.3 - 32.1 (cc/1000st)		0	2.0
	Full load deliv. with charge air press.	900	38.6 - 39.4 (cc/1000st)		240 - 260	2.0
1-4	Idle speed regulation	350	6.6 - 8.6 (cc/1000st)		0	0.9
1-5	Start	100	above 38.0 (cc/1000st)		0	
1-6	Full-load speed regulation	2350	35.3 - 37.3 (cc/1000st)		470 - 490	4.5
1-7	Load-timer adjustment					

2. Test values

2-1 Timing device	N = rpm mm	900 1.1-1.5	1800 4.3-5.4	2300 6.3-7.4	2500 6.5-7.4	
2-2 Supply pump	N = rpm kg/cm ²	900 3.5-4.1	1800 5.6-6.2	2300 6.9-7.5		
2-3 Overflow delivery	N = rpm cc/10s	900 43.0-87.0				

2-4 Fuel injection quantities

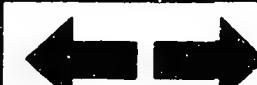
Speed control lever pos.	Speed (rpm)	Fuel delivery (cc/1000st)	Charge-air pres(mmHg)	Difference (cc)
End stop	900	38.1 - 39.9	240 - 260	
	600	30.8 - 32.6	0	
	1200	42.0 - 46.0	470 - 490	
	1800	41.2 - 45.2	470 - 490	
	2200	40.5 - 46.5	470 - 490	
	2300	37.8 - 44.8	470 - 490	
	2350	34.8 - 37.8	470 - 490	
	2500	14.0 - 24.0	470 - 490	
	2800	below 3.0	470 - 490	
Switch off	350	0	0	
	900	0	342 - 362	
Idle-stop	350	6.6 - 8.6	0	
	500	below 3.0	0	
Partial load	900	6.6 - 12.6	0	
2-5 Solenoid	Cut-in voltage max. 8 V Test voltage: 12 - 14 V			

3. Dimensions

K	3.2 - 3.4 mm
KF	6.54 - 6.74 mm
MS	1.7 - 1.9 mm
BCS	3.8 - 4.0 mm
Pre-st.	- mm

Control lever angle

α	19 - 27 deg
A	8.7 - 12.9 mm
β	37 - 47 deg
B	11.5 - 15.2 mm
γ	10.5 - 11.5 deg
C	5.7 - 6.3 mm



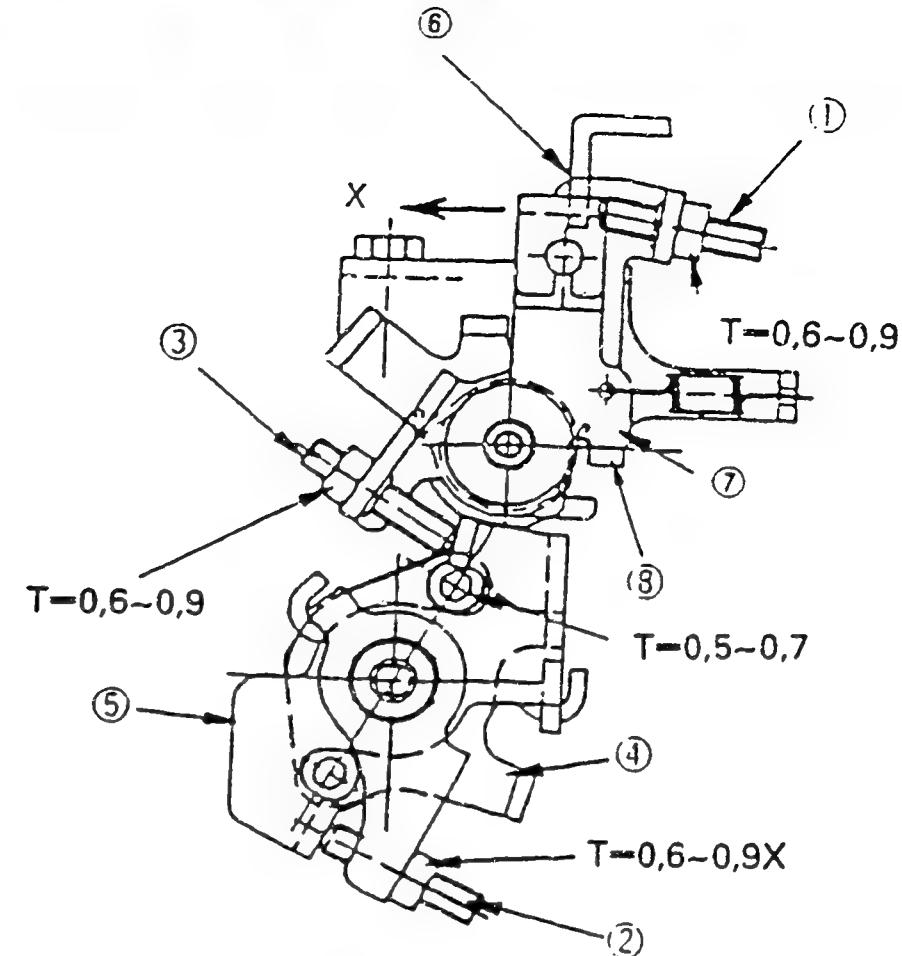
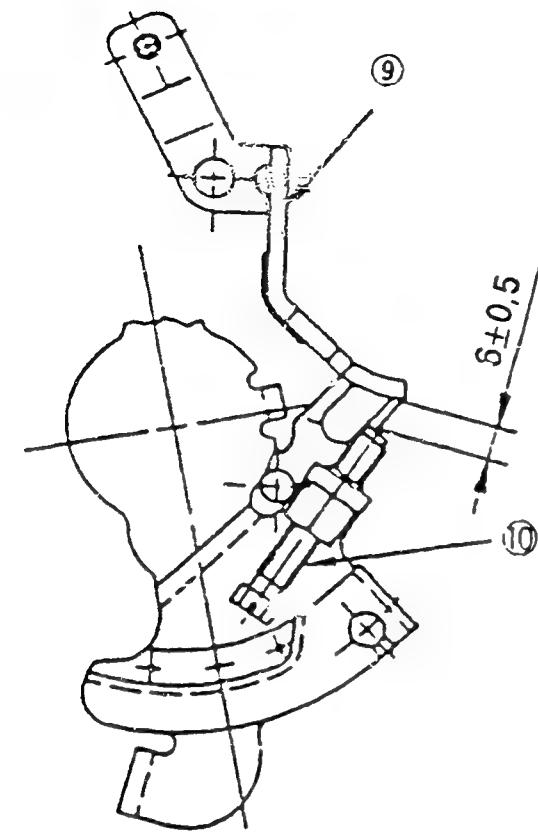


Fig. 31

104749-2152 2/3

9 = Idling set bracket

6 = Control lever

7 = Intermediate lever

M-CSD ADJUSTMENT

1. CSD Adjustment

- 1) Hold the control lever (6) in the idling position.
- 2) Move the CSD lever (5) to the right until it contacts the stopper (4).
- 3) Then, adjust the position of the screw (2) so that the timer stroke is 1.6 ± 0.2 mm and fix the screw (2) using the nut.

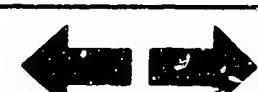
E25

ZEXEL - Test values
Injections pumps



E26

ZEXEL - Test values
Injections pumps



(Continued)

2. Fixing the Intermediate Lever Adjustment Screw

- 1) Hold the CSD lever (5) in the position described in item 1 (timer stroke: 1.6 ± 0.2 mm).
- 2) Move the intermediate lever (7) toward 'X' and confirm that it contacts the stopper (8).
- 3) Then, adjust the screw (3) so that the CSD lever (5) contacts the screw (3) and fix the screw (3) using the nut.
- 4) Return the intermediate lever (7) to its original position and confirm that the timer stroke is 0 mm.

3. Screw (1) Adjustment

- 1) Move the intermediate lever (7) toward 'X' until it contacts the stopper (8).
- 2) Adjust the position of the screw (1) so that the gap between the idling set bracket (9) and screw (10) is 6 ± 0.5 mm, and fix the screw (1) using the nut.
- 3) Then, confirm that the gap between the control lever (6) and screw (1) is approximately 1.7 mm.



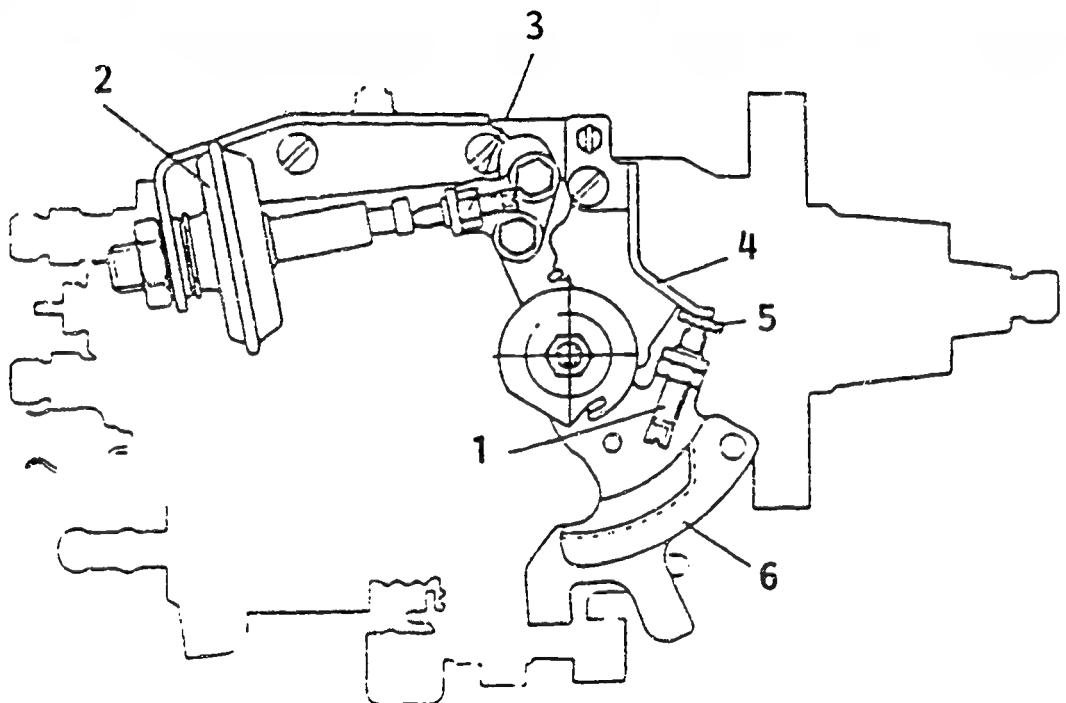


Fig. 32

104769-2152 3/3

1 = Idling stopper bolt
 2 = Dash pot
 3 = Dash pot adjusting screw

4 = Bracket
 5 = Block gauge
 6 = Control lever

■ DASH POT ADJUSTMENT

1. Insert a block gauge (thickness gauge) of thickness 3.8 ± 0.05 mm in the gap between the idling stopper bolt and the bracket.
2. With the control lever positioned as described in 1. above, adjust the dashpot adjusting screw so that the dashpot adjusting screw and the pushrod are in contact.
Fix the screw using the nut.

ZEXEL - TEST VALUES
Injections pumps

<u>BOSCH No.</u>	:	9 400 610 124	1/5
<u>ZEXEL No.</u>	:	106692-4832	
<u>Date</u>	:	31.10.1990	[0]
<u>Company</u>	:	KOMATSU	
<u>Engine</u>	:	S6D125 /6151-71-1154	

IP-Type number : 106069-5420 / PE6P
Governor type number : 105407-3962 EP/RSV

TEST PREREQUISITES

Test oil : ISO-4113
Test oil inlet temperature °C : 40.00...45.00
Inlet pressure bar : 1.6
Test nozzle holder combination : 1 688 901 013
Opening pressure bar : 175
Test pressure line
Inner x Outer Dia - Length mm : 3.00 x 8.00 x 600

P O R T C L O S I N G

Prestroke mm : 3.75 ± 0.05
Rod position mm : -
Port closing mark Cyl. No. : -
Cam sequence : 1-5-3-6-2-4

Port closing mark Cyl. No. : -
Port closing difference °NW : 0-60-120-180-240-300

Tolerance +- °C: 0.50 (0.75)

F1

ZEXEL - Test values

Injections pumps



Continued (Test values)

Injection Quantity :

Adjusting Point	Rod Pos. (mm)	Speed (rpm)	Injection Q'ty (cc/1000 str.)	Difference (%)	Fixed	Remarks
A	10.2	1100	150.7 - 154.7	± 3	Lever	Basic
B	approx. 6.5	350	10.5 - 13.5	± 15	Rack	

Timing Advance Specification :

Speed (rpm)							
Advance Angle (deg)							

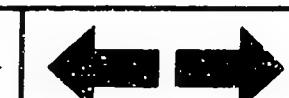
F2

ZEXEL - Test values
Injections pumps



F3

ZEXEL - Test values
Injections pumps



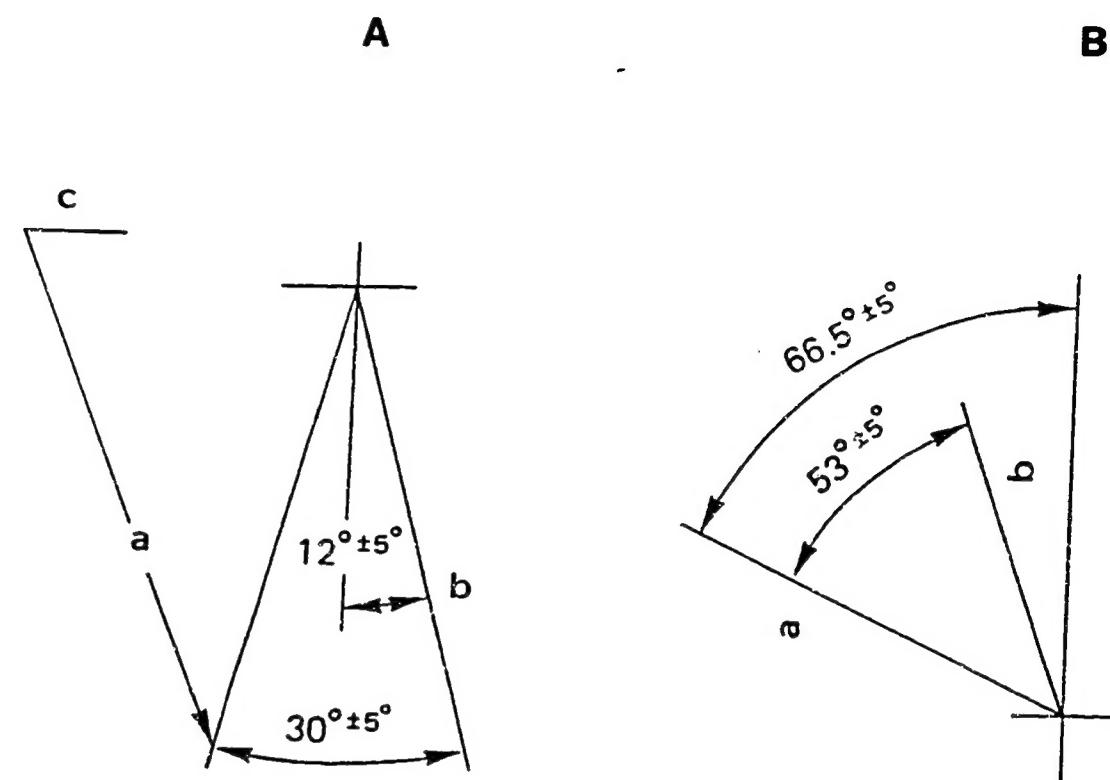
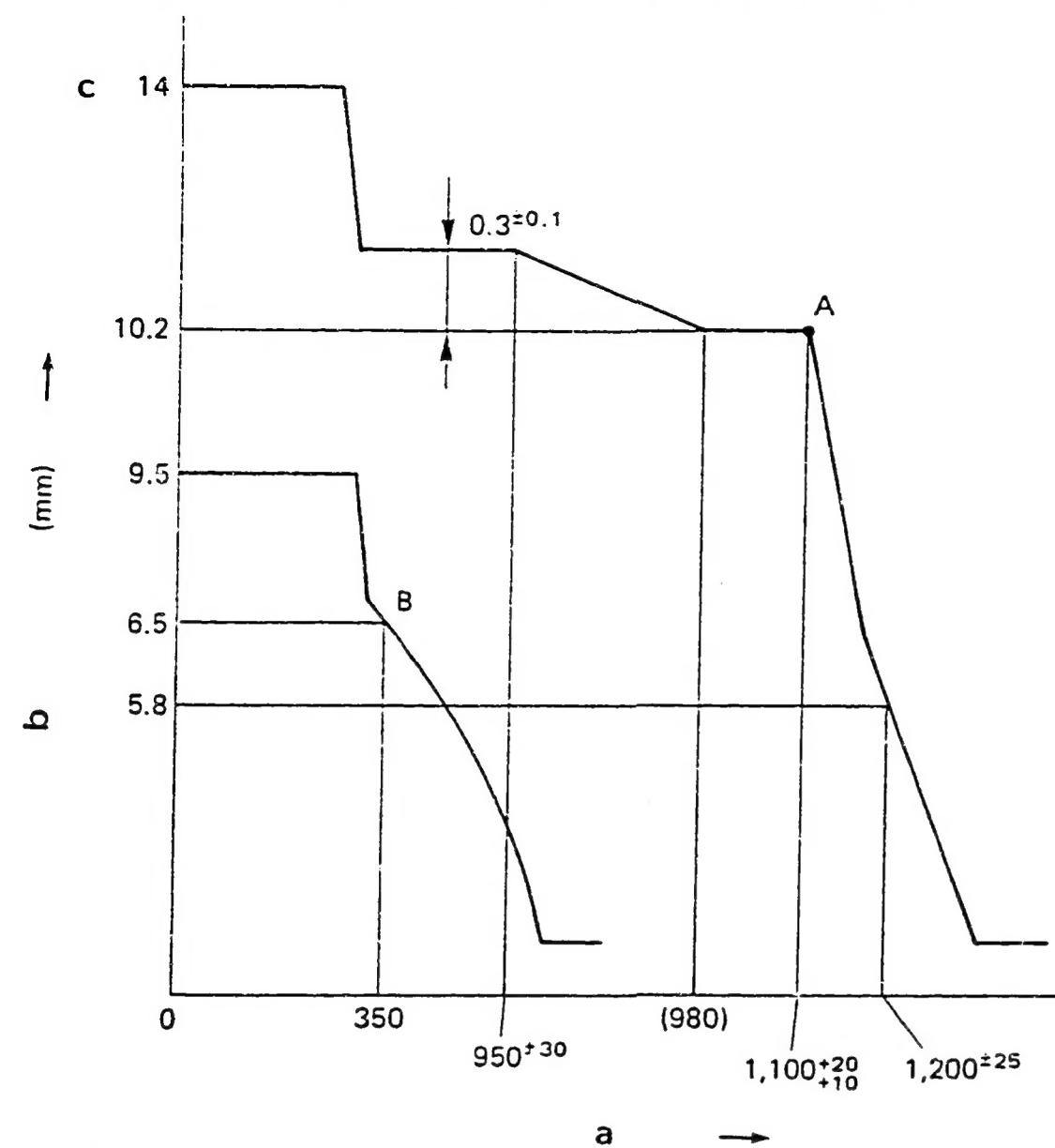


Fig. 33

GOVERNOR ADJUSTMENT

101602-4832 2/5

a = Pump speed (rpm)
b = Control rack position
c = above

A = Stop lever angle
a = Idling
b = Full-speed
c = Stopper bolt set

B = Stop lever angle
a = Normal
b = Stop

Note

- Before adjustment, remove the idling sub spring.
- Move the control lever fully in the stop direction, and set the minimum-speed stopper bolt so that the control rack position is 0.5 - 1.0 mm.

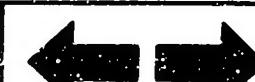
F4

ZEXEL - Test values
Injections pumps



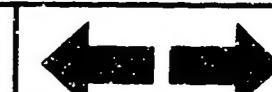
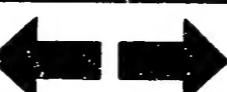
F5

ZEXEL - Test values
Injections pumps



■ ADJUSTMENT

	Pump speed (rpm)	Rack position (mm)	Remarks
Full-speed Adjustment (Temporary)	1110 - 1120 1100	10.2 10.2	<ul style="list-style-type: none"> • Adjust using screw (1) • Confirm
Torque Control spring Adjustment	700 approx. 350 (980) -	10.4 - 10.6 6.5 10.2 -	<ul style="list-style-type: none"> • Adj. using spring cap. (3) • Confirm • Confirm • Confirm the torque control stroke is 0.3 mm
Idling Adjustment	0 350 -	9.5 6.5 -	<ul style="list-style-type: none"> • Fix the control lever • Adj. using spring cap. (4) • Confirm
Maximum-speed Adjustment	1110 - 1120 1185 - 1215	10.2 5.8	<ul style="list-style-type: none"> • Adjust using screw (2) • Confirm speed droop • Adjust using screw (5) • Confirm
Full-load Adjustment (Install the cover on governor cover)	1100	10.2	<ul style="list-style-type: none"> • Adjust using screw (2)
Control Lever Angle Measurement	<ul style="list-style-type: none"> • Measure the control lever angle at the "idling" and "full" positions. • When the control lever is depressed toward the "full" position, replace the shifter's shim with a thicker one. • When the control lever is depressed toward the "idling" position, replace the shifter's shim with a thinner one. 		



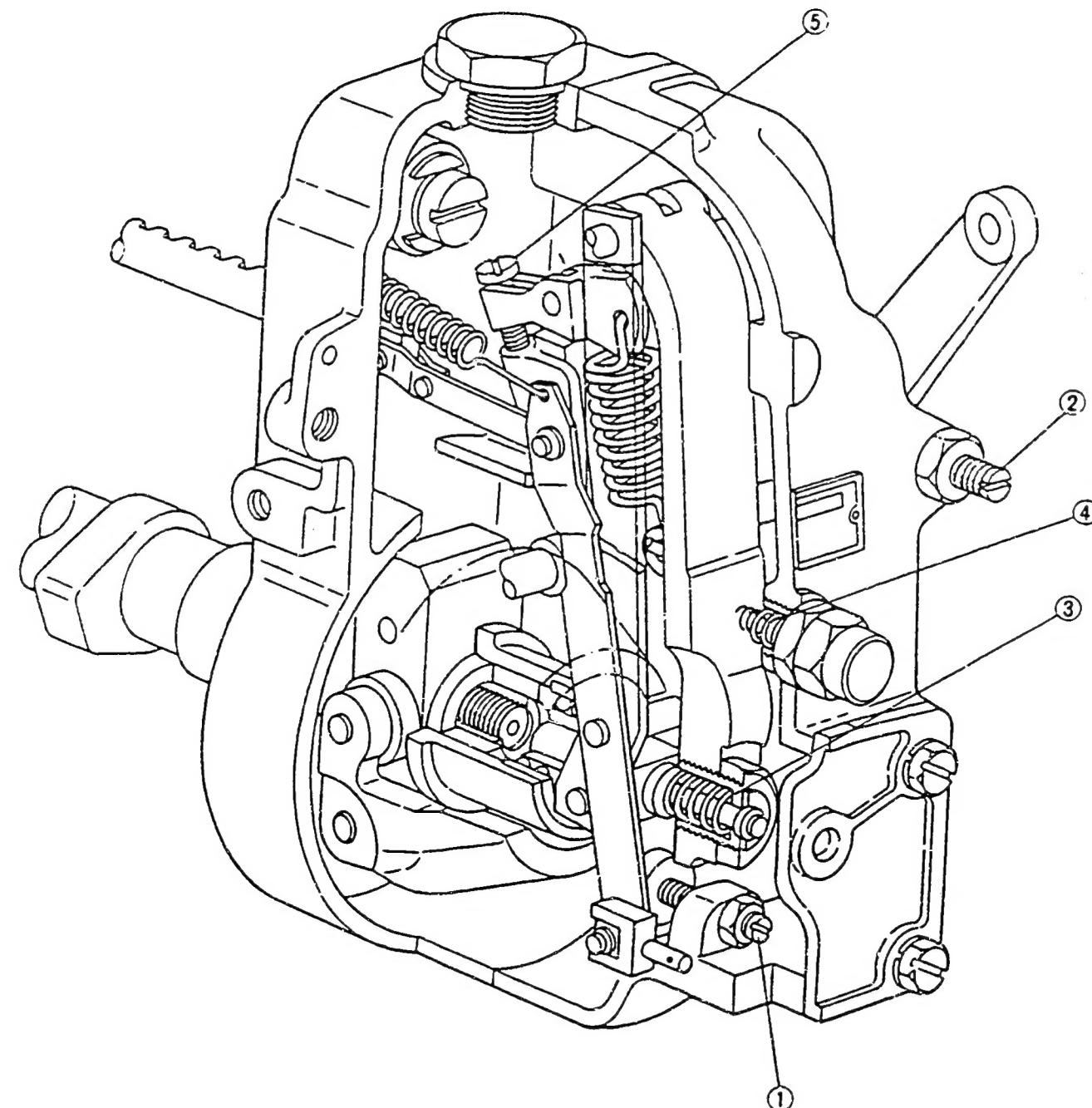


Fig. 34

- 1 = Screw
- 2 = Screw
- 3 = Spring capsule
- 4 = Spring capsule
- 5 = Screw

106692-4832 4/5

F8

ZEXEL - Test values
Injections pumps



F9

ZEXEL - Test values
Injections pumps



■ CONTROL LEVER REACTION FORCE ADJUSTMENT

1. Loosen bolt (2) a little.

Using bolt (4), move the cancel spring's hooking point to find the position specified in the specifications.

Fix bolt (4) using nut (3), and fix the lever (5) using bolt (2).

2. After adjusting the control lever's reaction force, operate the pump at 350 rpm, gradually move the control lever from the FULL position and confirm that it returns to the idling position.

Control lever reaction force: 0.6 kg-m.

This is the force required at high idling (1200 ± 15 rpm) to move the speed lever from the position where it contacts the stopper bolt when positioned at the FULL side.

3. Confirm that the control lever returns to the idling position when it is moved from the stop position.

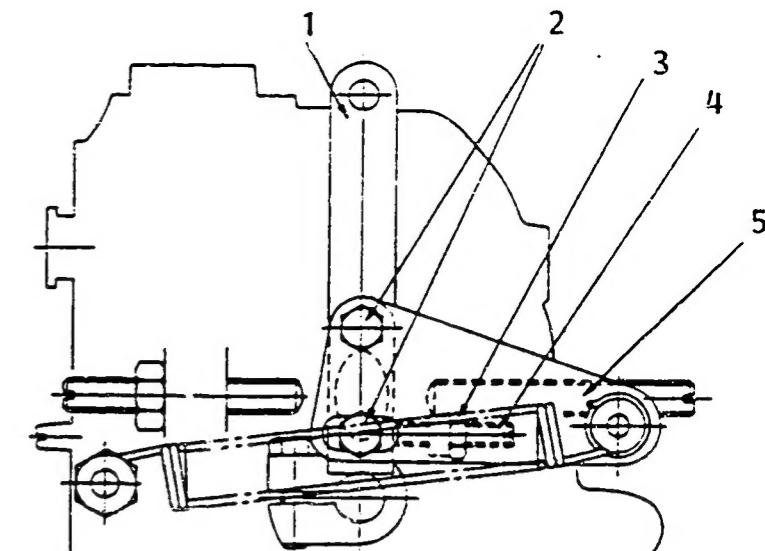


Fig. 35

- 1 = Lever
- 2 = Screw
- 3 = Bolt
- 4 = Screw
- 5 = Lever